

# REPORT

226

OF THE

MEDICAL AND HEALTH DEPARTMENTS

KEDAH AND PERLIS

FOR THE YEAR

1934 A.D.

(15TH RAMTHAN, 1352 A.H. TO 24TH RAMTHAN, 1353 A.H.)

BY

J. GRAY, M.D.,

STATE SURGEON TO THE KEDAH GOVERNMENT.



Alor Star:  
PRINTED AT THE KEDAH GOVERNMENT PRESS.

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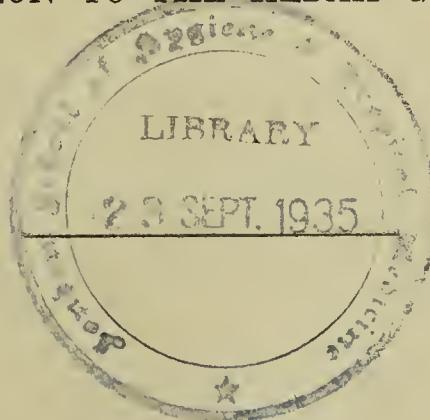
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## I. ADMINISTRATION.

### (a) STAFF.

The principal appointments are:—

- The State Surgeon (also State Surgeon for the Perlis Government).
- The Acting Senior Health Officer.
- The Health Officer.
- 2 Medical Officers.
- 1 Lady Medical Officer—stationed at Alor Star.
- 1 Pathologist.
- 8 Assistant Surgeons.
- 2 European Nursing Sisters.
- 50 Dressers.
- 4 Laboratory Assistants.
- 1 qualified Dispenser-Storekeeper.
- 3 Asiatic Nurses.
- 8 Asiatic certificated midwives (attendant class).
- 4 Vaccinators.
- 4 Health Inspectors attached to the Health Office.
- 12 Health Inspectors attached to the various Sanitary Boards.

### (b) CHANGES IN THE STAFF.

Dr. J. H. Bowyer, Acting Senior Health Officer, Kedah, proceeded on furlough on 4-6-34 (20-2-53) from which date Dr. R. C. Burgess, Health Officer, Kedah, acted as Senior Health Officer in addition to his duties until 30-8-34 (19-5-53) when Dr. J. H. Strahan was seconded from Singapore as Health Officer, Kedah.

When Dr. R. C. Burgess proceeded on furlough on 7-9-34 (27-5-53), Dr. J. H. Strahan acted as Senior Health Officer, Kedah in addition to his duties until he was relieved by Dr. W. J. Vickers who was seconded from Pahang as Acting Senior Health Officer, Kedah on 6-12-34 (28-8-53).

Miss M. I. Turnbull, Nursing Sister, proceeded on furlough on 9-6-34 (25-2-53) and was relieved by Miss D. G. Jones who was seconded from Penang on 24-5-34 (9-2-53).

Dr. J. A. P. Cameron, Medical Officer, North Kedah, proceeded on furlough on 18-8-34 (7-5-53), and was relieved by Dr. E. C. Chitty who was seconded from Penang as Medical Officer, North Kedah on 30-8-34 (19-5-53).

Two Kedah Government students from the King Edward VII Medical College, Singapore, were appointed as Assistant Surgeons—Dr. Low Chin Seang on 15-4-34 (30-12-52), and Dr. Low Thean Loy on 25-9-34 (15-6-53).

### (c) LEGISLATION.

The following Enactments, Rules, and By-laws having a bearing on the Public Health were passed or amended during the year:—

By-laws relating to buildings, stables, slaughter houses, markets, street-stalls, hawkers, lodging houses, latrines, bakeries, dangerous-trades, antimalarial measures in accordance with Section 5 of the Sanitary Boards Enactment, 1334 (Gazette Notification 1810—February 10, 1934).

The Health Board (Amendment) Enactment No. 16 of 1352, the Workmen's Compensation Enactment No. 1 of 1353, Rules under the Workmen's Compensation Enactment, the Ports Enactment No. 4 of 1353.

## (d) FINANCIAL.

The revenue for the years 1933 and 1934 were as follows:—

	1933	1934	
Medical Department	... \$10,879	\$9,387	Hospital Fees and Medicine.
Pathological Branch	... \$ 388	\$ 271	Laboratory Fees
Total Revenue	... <u>\$11,267</u>	<u>\$9,658</u>	These figures do not include revenue collected from other sources and credited to Misc. Receipts, Miscellaneous.

The expenditure for the years 1933 and 1934 were as follows:—

Expenditure	1933		1934	
	Personal Emoluments	Other Charges	Personal Emoluments	Other Charges
Medical Department	... 165,763	\$ 184,894	\$ 189,156	\$ 176,918
Health Branch	... 28,549	15,605	20,739	15,300
Pathological Branch	... 5,132	4,927	8,107	1,704
Total Expenditure	... 199,444	205,426	218,002	193,922

## (e) DISTRICTS.

The State is divided into four Districts for the purpose of medical and health administration:— North, Central, South, and the Island of Langkawi and the adjoining islands.

North Kedah has an area of 1,549 square miles with an approximate population of 244,009.

Central Kedah has an area of 1,546 square miles with an approximate population of 124,552.

South Kedah has an area of 553 square miles with an approximate population of 83,675.

The Island of Langkawi and the adjoining islands have an area of 59 square miles with an approximate population of 13,034.

Table III gives the population of the various districts.

## (f) MEDICAL INSTITUTIONS.

## NORTH KEDAH.

Hospital, Alor Star	..	..	..	..	300 beds.
Out-door Dispensary, Alor Star Town.					
Malay Women and Children Dispensary, Bakar Bata.					
Out-door Dispensary, Kuala Nerang.					
,,	,,	Changloon.			
,,	,,	Yen.			

## CENTRAL KEDAH.

Hospital, Sungai Patani	..	..	..	..	285 beds.
,,	Baling	..	..	..	28,,
Out-door Dispensary, Sik.					

## SOUTH KEDAH.

Hospital, Kulim	..	..	..	..	200 beds.
Out-door Dispensary, Bandar Bahru.					

## LANGKAWI.

Hospital, Kuah	..	..	..	..	63 beds.
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There is an Out-door Dispensary at each hospital.

The Malay Women and Children Dispensary was removed from Pumpong to Bakar Bata.

North, Central, and South Districts are each provided with a Motor Travelling Dispensary by which visits are regularly made to schools, villages, and Police Stations accessible by roads.

In Langkawi Island the Assistant Surgeon or Dresser visits all villages every month by sea or road, distributing medicines, vaccinating, giving injections, and inspecting schools.

The map shows the area covered by the said Dispensaries.

All Government servants and coolies under the P.W.D. are regularly examined for symptoms of Tuberculosis.

At Jitra arrangements were made towards the end of the year to put up an Out-door Dispensary which will be opened to the public early in January, 1935.

#### (g) BUILDINGS.

A ward for the accommodation of Phthisis cases is being constructed at the Hospital, Alor Star.

Additional attendants quarters are in the course of erection at Alor Star hospital.

2 Malay wards of a new type and 2 additional cells are in the course of erection at hospital, Sungai Patani.

## II. PUBLIC HEALTH.

#### (a) VITAL STATISTICS.

As the Mohammedan Calendar was in force up to 1929 only data since that date are comparable with the year under review. Detailed statistics for the State of population, births, deaths, and infantile mortality are given in Tables I to X in the appendix.

#### POPULATION.

The population figure has again been obtained by the process of geometrical progression from the Census returns. It will be seen that there was an increase of 10,990 from the previous years mid-year figure of 454,280. It may be of interest to record that an estimation by births over deaths corrected to the immigration and emigration statistics for the year gives a population figure of approximately 465,114.

While the figure for the Malay section of the population (Table II) may be taken as reasonably accurate, that for the other races based on the Census returns can only be taken as approximate in view of the rapidly changing labour conditions. The Malay section of the population is now estimated to comprise some 65% of the total, the Chinese some 18% and the Indians some 12%. The estimated mid-year population by sex in the State is 254,400 males and 210,870 females. The sex ratio has risen from 135 males to 100 females in 1921 to 120 to 100 in 1934. The ratio in the Malay race is now almost equal for the sexes. That for the Chinese is still 100 females to 186 males, that for the Indians being 100 to 164. The sex ratios among the Chinese and Indians are thus seen to be still far from satisfactory.

Only three urban areas have a population of more than 5,000. Of these Alor Star may be said to be a Malay town and Sungai Patani and Kulim Chinese centres of population. It is interesting to record that in only one small urban area has there been a marked increase in population over the last fourteen years namely, Baling. Here the population has increased from 674 in 1921 to approximately 2,024 in 1934. Over 40% of this population is still Malay.

## BIRTHS.

The number of births registered during the year was 16,763, equal to a crude birth rate of 36.03. The birth rate has varied little over recent years. Of these births 8,570 were of males and 8,193 of females.

A perusal of the data in the appendix indicates that the Malays registered almost four times the number of Chinese births and over seven times the number of Indian births, the Chinese registering nearly double the number of Indian births. It will be further observed that although the Malay birth rate was the highest for all races, the female fecundity was most marked amongst the Chinese. Still-births were by far the most prevalent amongst the Malays whilst, in general, there was one still birth to every 16.7 normal births.

## DEATHS.

10,165 deaths were registered during the year, giving a crude death rate of 21.8 as compared with 20.3 for 1933. 5,842 deaths were registered from amongst males and 4,323 from the females. It is of interest to note that the crude death rate has varied little during recent years, years of economic distress. Death rates alone cannot be taken as adequate criteria of the extent of sickness and impairment present however, as they are not immediately affected by unfavourable conditions unless starvation and pestilence are actually present. The rising infantile mortality rate alone shows this. Gross mortality rates for large groups of population do not indicate if certain elements are suffering from ill-health.

The Malay and Chinese death rates were about equal and were the highest amongst the races. It will be observed that there were more male deaths at all age periods except at the age period 20—25 when female deaths predominated.

About one quarter of the total deaths were recorded in infancy (under 1 year), one quarter at the age period 1—20, one quarter at the age period 20—50 and one quarter for 50 years and over.

The principal killing diseases among persons of all ages in order of frequency were:—

	Approximate percentage of crude deaths.				
Fever unspecified .. .. .. .. ..	41				
Convulsions .. .. .. .. ..	12				
Premature births .. .. .. .. ..	11				
Old age .. .. .. .. ..	8				
Respiratory disease (excluding T.B.) .. .. .. ..	7				
Malaria .. .. .. .. ..	3				

## INFANTILE MORTALITY.

The crude infantile mortality rate (number of deaths under one year of age per 1,000 live births) for the year was 148 as compared with 141 for 1933. Nearly 50% of these occurred before the first month of life during the year under review.

As noted in previous reports the highest rate was again amongst the Indian community (188) and the lowest amongst the Malays (143), the Chinese being 148. The three principal causes of deaths of infants in order of frequency apparently were:—

Convulsions .. .. .. ..	nearly 50%
Premature birth .. .. .. ..	over 45%
Fever unspecified .. .. .. ..	over 4%

These figures and an investigation into the records shew that the proper causes of death are not returned in the majority of cases, as many of the Deputy Registrars appear to be incapable of carrying out any except the simplest of instructions.

## (b) PREVALENCE OF, AND CONTROL OVER, COMMUNICABLE DISEASE.

*Infectious Diseases Generally.*

No outstanding variation in the general incidence of the communicable diseases or epidemic manifestation was observed during the year under review. Nevertheless, such an apparently satisfactory state of affairs must be accepted with due caution as prolonged absence of certain diseases may lead to a dangerous lack of immunity. Thus any relaxation in control is to be deprecated.

The following table indicates the incidence of reported communicable disease by nationality for 1934:—

Diseases	Malays	Chinese	Indians	Non- Asiatics	Others	Total	
	Deaths	Deaths	Deaths	Deaths	Deaths	Cases	Deaths
* Fever unspecified	3,201	676	184	...	131	...	4,192
* Malaria	129	108	51	...	24	...	312
* Chicken-pox	...	...	...	...	...	54	...
* Tropical typhus	...	...	...	...	...	3	...
Typhoid	43	18	4	...	1	18	66
Para typhoid C	...	...	...	...	...	1	...
Dysentery and diarrhoea	115	85	53	...	7	357	260
Influenza	19	4	4	...	1	749	28
* Diphtheria	...	5	...	...	...	10	5
Measles	...	1	3	...	...	542	4
Whooping cough	...	...	1	...	...	23	1
Mumps	...	...	...	...	...	68	...
Leprosy	1	...	...	...	...	37	1
* Pneumonia	21	47	101	...	10	442	179
* Phthisis	67	74	39	...	6	180	186
Puerperal Fever	153	23	27	...	6	...	209
Erysipelas	...	...	...	...	...	10	...
* Yaws	...	...	...	...	...	6	...

\* Specially noted below.

The following diseases call for special mention:—

#### (1) INSECT-BORNE DISEASE.

##### *Malaria.*

4,504 deaths or 45 per cent of the total deaths in the State were reported as due to malaria and fevers of undefined origin during the year under review. If convulsions are added, and without doubt many malarial deaths are reported as due to convulsions, this percentage is increased to some 56 per cent. Diagnosed malaria accounted for some 3 per cent of deaths from all causes. Although the larger proportion of deaths in the group of undefined fevers is due to malaria, it cannot be assumed that all the deaths in this category represent malarial deaths.

Spleen inspections on over 3,000 children in various areas gave ratios varying from 30 per cent downwards. Such figures must be taken with caution owing to the small number of persons examined and the few areas visited. It is to be noted, however, that the Chinese average rate among those examined was half the Malay, and this fact may be attributed to the commoner use of mosquito nets among the former.

An effort will be made during the coming year to get a fairer indication of the amount of actual malaria present by means of spleen surveys and inspections in rural and kampong areas. This disease can nevertheless be said to be the most important causes of sickness and death in this State. Antimalarial work may be said to be concentrated in the following six urban and semi urban areas at the moment apart from that done on estate groups:— Alor Star, Sungai Patani, Kulim, Bukit Kayu Hitam, Kuala Nerang and Langkawi. Such control consists in both temporary (drainage, ditching and oiling) and permanent (sub-soiling) works. That the areas in question are by no means fully protected has been amply demonstrated by recent cases and investigations in Alor Star. As much as is possible has been done with the \$10,500 available to the Health Department for the work during the year under review. It is to be noted that this sum represents an expenditure of some 28 cents per capita per annum in the areas concerned, a sum considerably less than that usually required to protect similar anti-malarial zones.

As noted above, a number of cases of malaria in Alor Star during the year brought the malarial situation to the fore in that area, and steps are now being taken to investigate the problem thoroughly. An outbreak of malaria was also reported from Kuala Nerang. Oiling measures were therefore started in that area and a permanent antimalarial scheme has now been approved for it. Chemio-prophylaxis is practised at the Quarantine Station, Padang Besar, and at Bukit Kayu Hitam, and also on a number of estates, Atebrin and Plasmochin being the drugs of choice.

*Malaria on Estates.*

During 1934, 14,045 cases of malaria were reported from estates (Table XI A), this figure including fever of unknown origin but excluding deaths from infantile convulsions, a considerable proportion of which, as already noted were probably due to malaria.

Table XI. B. gives detailed information regarding the approximate amount of malaria recorded from European and Asiatic holdings, with figures showing the case incidence, the degree of hospital admission, case fatality in both hospitals and in lines, and the proportional mortality. This table must be interpreted with caution as the mass total does not indicate the number of individuals contracting malaria but the number of times individuals on estates were subject to treatment for the disease. The case incidence is high, therefore, but bearing this in mind, the figures have a definite comparative value.

Asiatic holdings with half the population of that resident on European holdings returned only one sixth the amount of malaria in spite of the fact that antimalarial measures were absent on many holdings and treatment was not adequate. In most of these instances the resident population was too small for such measures to be economically feasible.

On the other hand the proportion of malarial deaths returned to population is approximately the same.

Of 100 cases admitted to hospital from Asiatic holdings 4 die, compared to one from European holdings.

Of 1,000 cases suffering from malaria on Asiatic estates some 16 die, compared to under one on European holdings.

It would appear to be a just deduction therefore (a) allowing for immunity developed due to constant exposure to the disease and to employment of indigenous labour rather than of imported, that a large number of the population employed on Asiatic holdings suffer from chronic malaria which is not reported; (b) sick remain and die on Asiatic estates or are in a serious conditions when removed to hospital. This aspect of estate work is receiving the attention of the Health Board.

In general, however, it may be stated:—

(a) that malaria is still the main source of economic loss on estates in Kedah. It causes one death in ten and approximately 320 cases of illness per 1,000 population per annum;

(b) only one third of the cases are admitted to hospital but European holdings send their sick to hospital earlier than do Asiatic holdings, on which the population is apparently less amenable to hospital treatment.

Though there were only three serious outbreaks of malaria on estates during the year and in each case the disease was rapidly got under control, the above figures clearly demonstrate the importance of proper antimalarial control from both the public health and economic standpoints.

It is noticed that the more malarious estates tend to show an increased percentage of labour movement—up to 22.5 per cent in one case—a point of considerable importance in view of the present abnormal weather conditions and the influx of new labour.

Antimalarial control by means of oiling or chemioprophylaxis was the rule on all the larger groups.

(2) EPIDEMIC DISEASE.

(a) *Small-pox and Chicken-pox.*

Although no cases of small-pox were reported during the year every case of chicken-pox was carefully investigated.

Vaccinations were carried out on estates as follows:—

Year	No. of persons Vaccinated	No. of tubes used	No. successfully done	Percentage successfully
1933 A.D. ...	811	80	667	82
1934 A.D. ...	753	111	670	90

(b) *Tropical Typhus.*

Three cases with no deaths were reported during the year as compared with none during 1933. The disease appeared to be confined to rural areas.

(c) *Diphtheria.*

The 10 cases and 5 deaths reported during the year may be compared with the 4 cases and 1 death noted in last year's report. The disease, as is the case elsewhere, was confined to urban areas.

The increase in the local virulence in this disease is of interest and is in common with that reported from other parts of the country and from other countries. Convulsions, one of the leading diagnoses made after death, must also be borne in mind in this connection as it often covers a missed case of diphtheria.

(d) *Pneumonia.*

There were 179 deaths recorded from this cause during 1934 as compared with 130 last year. Thus nearly 2 per cent of the total deaths reported were due to Pneumonia. There was a crude case mortality of 4 per cent and an approximate death rate of 0.4 per mille. It is interesting to compare these figures with those from the estate populations for the year where a hospital case mortality of 22.2 per cent and a death rate of 2.8 per mille were reported.

(e) *Phthisis.*

186 deaths were reported as against 65 the previous year. Thus this disease accounted for nearly 2 per cent of the total deaths recorded during the year under review.

(f) *Yaws.*

The small number of yaws cases notified makes it clear:—

(a) that yaws is a disease apparently absent from estate population;  
 (b) that this disease is not one of those for which treatment is now sought in hospital. A large amount of treatment is carried out in Government out-door dispensaries and by the medical staff on their district visits, however.

(c) QUARANTINE CAMP, PADANG BESAR.

The number of railway passengers examined at the Siamese Frontier during the year was as follows:—

			1933	1934
1st class ..	..	..	..	1,055
2nd class ..	..	..	..	959
3rd class ..	..	..	..	6,949
			<hr/>	<hr/>
		Total ..	8,963	10,342
			<hr/>	<hr/>

The examination revealed no dangerous communicable disease.

### III. HYGIENE AND SANITATION.

Work in the State under this head may be divided into four general sections for convenience as follows:—

(a) SANITARY BOARD AREAS.

Nine such areas function in the State namely:—Kota Star, Jitra, Kuala Nerang, Sungai Patani, Yen, Kulim, Baling, Bandar Bahru, and Langkawi. In each, the main urban areas are fully controlled, the lesser being gazetted as "Controlled Building Areas" only and dealt with accordingly.

(a) *Sewage disposal.*

Although an isolated septic tank installation or two exists here and there and a scheme to deal with a certain small portion of Alor Star, the capital of the State, is in contemplation, the main method of night soil disposal is by the dry pail, hand cartage and burial. Pail latrines are obligatory in all built up areas. The problem of improving existing systems in the various Sanitary Board areas is under consideration. Further extensions in the number of sanitary latrines is to be recorded in most of the areas under review by demolition of existing insanitary structures and re-erection.

(b) *Refuse disposal.*

Refuse is disposed of in each Sanitary Board area by either incineration or burial, and the question of improved methods is receiving attention. Public dust-bins exist in all towns and villages and experiments are in progress reference improved types.

The occupiers of all better class houses are required to possess and use rubbish bins of an approved pattern.

(c) *Water supplies.*

Piped supplies are available in most of the Sanitary Board areas while an emergency filtration and chlorination plant is held in reserve at Alor Star. The water supply problem is another which is still receiving attention.

(d) *Housing.*

The housing question received considerable attention from the Sanitary Boards during the year. Apart from strict observance of the By-laws in regard to new buildings, demolitions, closing orders, and improvements were carried out where necessary and possible. Particular attention was paid to ventilation, light and cubicles as many of the existing buildings were very bad in these conditions owing to the narrowness and length of lots. Considerably improved conditions were demanded in the case of such licensed premises as lodging houses. In the "Controlled Building Areas" steps were taken to demolish all hovels and similar insanitary dwellings as soon as improvements were asked for.

(e) *Food control.*

(1) All licensed premises such as eating and coffee shops and bakeries were inspected during the year. A number of licences were withdrawn and action is now being taken, particularly with regard to food manufacturing premises, to get improved conditions and cleanliness.

(2) Permanent "Markets" exist in all the larger urban areas and in many weekly fairs are especially catered for. The question of a definitely improved and necessary standard of cleanliness and inspection is receiving attention in regard to the former. The latter meet a definite public demand.

(3) A smalll number of street stalls were licensed for food and merchandise in all Sanitary Board areas but action was taken to reduce the existing numbers during the year under review. Most of the existing stalls do not conform to the By-laws, are fixed, create insanitary conditions and unfairly compete with market and shop house.

(4) All slaughter houses were controlled and an improved type was demanded. Action was also taken to improve piggeries and to remove them from Sanitary Board limits.

(b) GOVERNMENT DEPARTMENTS.

Inspection of police stations, cooly lines and other Government quarters were carried out during the year. The majority of those visited showed a reasonable sanitary standard.

(c) KAMPONG AND RURAL AREAS.

A scheme is under consideration whereby the majority of kampongs will be visited by the Health Staff in the future and whereby Health Inspectors will tend to deal with rural areas in addition to the present concentration on purely urban areas. An improved knowledge and use of pure water supplies, prevention of soil and water pollution and prevention, and report in major communicable disease will thus be attained.

IV. SCHOOL INSPECTION.

It is hoped to increase school visitation in 1935 as an additional travelling allowance is now available to enable an inspector to devote time to this work. Twenty-two Malay Vernacular schools were visited during the year. Of non-Government schools 24 Chinese, 3 Tamils and 2 English were visited, some at the request of the Registrar. In each case a report was forwarded to the State Surgeon for treatment of defects found, by the travelling dispensary and vaccinator. Reference was also made to the Superintendent of Education where necessary anent sanitary details.

Table XII (A and B) shows the remediable preventable diseases found in Malay and Chinese Schools.

Table XIII (A and B) shows a comparison in the spleen rates in children by district for 1933 and 1934.

V. PROPAGANDA.

This work was stopped during 1933 for economic reasons and none was done during the year under review.

VI. PROSECUTIONS.

There were 17 prosecutions under the Labour Code, resulting in \$301 in fines. 43 prosecutions were instituted under the Births and Deaths Enactment during the year.

There were two prosecutions and convictions under Section 46 (i) of the Deleterious Drugs Enactment No. 3/1348, and the total amount of fines imposed were \$75. The amount of contraband [cannabis sativa, Indian Hemp (Bhang)] seized were 2½ tahils which were destroyed personally by the Superintendent of Monopolies and Customs, Kedah.

## VII. ESTATES AND LABOUR CONDITIONS ON ESTATES.

A reference to Tables XIV to XIX will indicate the detailed statistical position on rubber estates in Kedah during 1934. 712 estates were visited during the year by the Health Staff. Of a total of 421 holdings comprising approximately 500 estates of 70 relongs or more in extent, 80 were 1,000 relongs or more in size, 35 of 500 to 1,000 relongs, 192 of 100 to 500 relongs and 114 of 70 to 100 relongs.

139 orders were issued under the Labour Code for improvements in antimalarial or sanitary measures and 17 court cases resulted. Improvements in these directions can definitely be recorded. The beneficial control of the Kedah Health Board in co-ordinating the policy for the betterment of the general health of the estate labourer cannot be overstressed. Seven European estates and 27 Asiatic with populations of over 80 persons were still without the services of a dresser at the end of the year, while 46 others only employed an unqualified person. It is estimated that the number of persons per qualified dresser on the larger Asiatic groups is nearly 5,000 and over 1,000 on European holdings.

While some form of septic tank treatment of sewage is the rule on a small number of estates the bucket or pit latrine had to suffice for the majority.

37 new lines were erected, or erection approved, during the year.

In considering the attached Tables, the figures for estate populations are given as the average of monthly totals for the year. It will be seen that the general population figure on European holdings has remained steady during the last three years, while that on Asiatic holdings has increased by some 5,000 persons. Nevertheless the total on the latter is still apparently some 7,000 below the 1931 figure. There is little doubt, however, that the latter part of 1934 saw a general increase in estate population although this has not been properly brought out by the monthly averages.

Interesting figures are disclosed by a study of the tables for European and Asiatic holdings. These indicate that the former are more unhealthy than the latter, an indication not borne out by observation and inspection. The reasons for such an extraordinary anomaly are the subject of a present investigation by the Kedah Health Board. The small number of births on Asiatic holdings as compared with European (approximately 1 to 5 per female head) is of practical significance in this connection.

It will be noted that the general crude death rate somewhat increased as compared with the 1933 figure. The recent influx of new labour is probably the reason for this. The birth rate on Estates for 1934 was 25 per mille and the Infantile Mortality Rate 227. With reference to the births, it is interesting to note that only 1 in 4 occurred under medical supervision on European holdings and 1 in 12 on Asiatic.

The percentage of estate population to the population of the State as a whole was about 10%. Over 66% of this total was Indians.

## VIII. MATERNITY AND CHILD WELFARE.

During the year there were 209 deaths recorded as due to affections connected with Pregnancy and Child birth or a percentage of 1.25 to total births—a slight increase over last year's figure.

The number of still births recorded were 1,004 or a percentage of 5.99% to total births.

380 cases under Pregnancy and its Diseases were treated in the various Government hospitals and there were 16 deaths or 4.21% to total treated.

Dr. (Mrs.) M. G. Brodie, Lady Medical Officer, was in charge of the Child Welfare Centre in North Kedah throughout the year.

Out-door cases attended by the Lady Medical Officer.

		New cases	Repetitions	Total
Hospital, Alor Star	...	804	596	1,400
Town Dispensary, Alor Star	...	1,911	1,908	3,819
Visits to homes	...	591	1,264	1,855
Malay Women and Children Dispensary, Bakar Bata	...	272	269	541
Total	...	3,578	4,037	7,615

## VISITS TO HOMES.

A total of 1,855 visits to homes were made by the Lady Medical Officer—591 new cases and 1,264 repetitions.

## OUT-DOOR MATERNITY CASES.

District		Malays	Chinese	Indians	Others	Total
North Kedah	...	101	1	13	...	115
Central Kedah	...	3	...	3	...	6
South Kedah	...	1	4	4	1	10
Langkawi	...	8	1	...	...	9
Total	...	113	6	20	1	140

## STILL-BORNS AND ABORTIONS.

## OUT-DOOR CASES.

North Kedah	..	..	..	..	..	1
Central Kedah	..	..	..	..	..	..
South Kedah	..	..	..	..	..	1
Langkawi	..	..	..	..	..	..
					Total	.. 2

## IX. HOSPITALS AND DISPENSARIES.

A total of 14,367 patients were treated in all hospitals and prison sick wards. The deaths numbered 739, giving a percentage of 5.14%. 233 deaths occurred within 48 hours of admission; excluding these, the death rate was 3.52%.

The following table gives the number treated, with deaths, for the past six years:—

Year	No. treated	Deaths	Percentage of deaths
1346 A.H. ...	24,432	1,987	8.13
1347 " ...	19,121	1,506	7.87
1930 A.D. ...	17,800	1,155	6.48
1931 " ...	12,695	738	5.81
1932 " ...	12,473	596	4.77
1933 " ...	13,617	646	4.74
1934 " ...	14,367	739	5.14

The following table gives the number of cases treated at Out-door Dispensaries, as well as number of cases treated by the Travelling Dispensaries:—

		New cases	Repetitions	Total
Out-door Dispensary, Hospital, Alor Star	...	9,277	1,749	11,026
" " Alor Star Town	...	9,268	6,150	15,418
" " Changloon	...	2,695	534	3,229
" " Kuala Nerang	...	4,489	629	5,118
" " Yen	...	5,817	1,875	7,692
Malay Women & Children Dispensary, Bakar Bata		272	269	541
Out-door Dispensary, Hospital, Sungai Patani	...	3,877	497	4,374
" " Baling	...	6,016	1,732	7,748
" " Sik	...	2,137	371	2,508
" " Hospital, Kulim	...	4,787	625	5,412
" " Bandar Bahru	...	1,979	94	2,073
" " Hospital, Langkawi	...	2,526	1,154	3,680
Motor Travelling Dispensary, North Kedah	...	6,719	1,498	8,217
" " Central Kedah	...	5,605	15	5,620
" " South Kedah	...	4,791	104	4,895
Travelling Dispensary, Langkawi	...	1,122	...	1,122
Prison, Alor Star	...	911	3,968	4,879
" Sungai Patani	...	580	899	1,479
Total	...	72,868	22,163	95,031

The following table gives the number of Indoor sick treated during the year in the various Hospitals and Prison sick wards:—

Hospital				No. treated	Deaths	Percentage of deaths
Alor Star	...	...	...	5,791	270	4.66
Sungei Patani	...	...	...	4,192	239	5.70
Kulim	...	...	...	3,609	199	5.51
Baling	...	...	...	337	17	5.04
Langkawi	...	...	...	310	14	4.52
PRISON SICK WARDS.						
Alor Star	...	...	...	118	...	...
Sungei Patani	...	...	...	10	...	...
		Total	...	14,367	739	5.14

#### NATIONALITIES OF INDOOR PATIENTS.

Nationalities			No. treated	Deaths	Percentage of deaths
Europeans	...	...	11	...	...
Eurasians	...	...	12	...	...
Chinese	...	...	6,249	456	7.30
Indians	...	...	5,754	215	3.74
Javanese	...	...	20	1	5.00
Malays	...	...	1,975	61	3.08
Japanese	...	...	3	...	...
Others	...	...	343	6	1.74
	Total	...	14,367	739	5.14

The approximate average daily number of Indoor patients for the year 1934 was:—

Hospital, Alor Star	..	..	..	..	..	264.0
„ Langkawi	..	..	..	..	..	21.4
„ Sungei Patani	..	..	..	..	..	206.0
„ Baling	..	..	..	..	..	19.9
„ Kulim	..	..	..	..	..	156.0
Prison Sick Ward, Alor Star	..	..	..	..	..	5.8
„ „ Sungei Patani	..	..	..	..	..	Less than 1

The average daily number of Indoor patients in Kedah Government hospitals and Prison Sick Wards for the past 6 years was:—

1346 A.H.	..	..	..	..	..	1,002.94
1347 „	..	..	..	..	..	942.38
1930 A.D.	..	..	..	..	..	881.11
1931 „	..	..	..	..	..	557.86
1932 „	..	..	..	..	..	548.10
1933 „	..	..	..	..	..	678.60
1934 „	..	..	..	..	..	673.10

## PREVAILING DISEASES—SICK INDOOR.

Diseases	1932 A.D.			1933 A.D.			1934 A.D.		
	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %
Malaria ...	2,527	68	2.66	2,755	84	3.05	3,239	107	3.30
Dysentery, Amœbic ...	142	13	9.15	130	13	10.00	148	15	1.36
,, Bacillary ...	46	11	23.91	64	5	7.81	32	7	21.88
Venereal Diseases ...	278	...	...	362	11	3.03	358	...	...
Respiratory Diseases (ex. Pulm. Tuber.)...	513	27	5.26	743	26	3.50	674	28	4.15
Pulmonary Tuber- culosis ...	373	113	30.29	353	98	27.76	351	108	30.77
Ankylostomiasis ...	655	28	4.27	661	20	3.02	757	11	1.45
Ulcers ...	1,034	...	...	1,038	1	.09	703	...	...
Wounds & Injuries ...	1,681	14	.83	1,596	23	1.44	1,676	20	1.19
Other Diseases ...	5,244	322	6.18	5,915	365	6.00	6,429	443	6.89
Total ...	12,473	596	4.77	13,617	646	4.74	14,367	739	5.14

## MENTAL DISEASES.

Kedah lunatics at the Central Mental Hospital, Tanjong Rambutan, 1934.

Sex	Remained	Admitted	Readmitted	Total	Discharged	Died	Absconded	Repatriated	Remaining	Remarks
Males ...	162	50	3	215	35	9	1	2	168	
Females ...	49	23	...	72	7	5	...	...	60	
Total ...	211	73	3	287	42	14	1	2	228	

Lunatics transferred from the Kedah Hospitals to the Central Mental Hospital, Tanjong Rambutan.

Hospital	Males	Females	Total	Remarks
Alor Star ...	30	8	38	
Sungei Patani ...	21	14	35	
Kulim ...	2	1	3	
Total ...	53	23	76	

The admissions to the Central Mental Hospital, Tanjong Rambutan, during the last six years were:—

1346 A.H.	..	..	..	..	..	..	72
1347 "	..	..	..	..	..	..	59
1930 A.D.	..	..	..	..	..	..	80
1931 "	..	..	..	..	..	..	73
1932 "	..	..	..	..	..	..	59
1933 "	..	..	..	..	..	..	71
1934 "	..	..	..	..	..	..	76

## LEPROSY.

Settlement		Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining
Pulau Jerajak	...	108	29	137	3	..	8	12	114
Female Settlement, Penang	...	6	..	6	..	..	..	1	5
Pangkor Laut	...	8	..	8	..	6*	..	2	..
Federal Leper Settlement, Sg. Buloh	...	2	8*	10	..	..	1	..	9
Leper Asylum, Kuala Lumpur	...	8	..	8	..	..	..	2	6
Kedah Hospitals	...	..	58	58	..	51	3	..	4
Total	...	132	95	227	3	57	12	17	138

\* On the closing of the Pangkor Laut Asylum all the Kedah lepers of this settlement were transferred to the Federal Leper Settlement, Sungei Buloh.

All the Kedah lepers were assembled at the Hospital, Sungei Patani, whence they were transferred to the various asylums outside the State.

The admissions to the Leper Asylums during the last six years were:—

1346 A.H.	..	..	..	..	..	..	20
1347 "	..	..	..	..	..	..	45
1930 A.D.	..	..	..	..	..	..	25
1931 "	..	..	..	..	..	..	42
1932 "	..	..	..	..	..	..	33
1933 "	..	..	..	..	..	..	23
1934 "	..	..	..	..	..	..	31

## LABORATORY AT KEDAH HOSPITALS.

The number of specimens examined during the year was:—

Alor Star	..	..	..	..	..	..	10,596
Sungei Patani	..	..	..	..	..	..	8,391
Langkawi	..	..	..	..	..	..	704
Baling	..	..	..	..	..	..	1,296
Kulim	..	..	..	..	..	..	10,316
							—
Total	..						31,303
							—

## POST MORTEMS.

The number of post mortems performed during the year was:—

	Medico-legal.	Pathological.
Alor Star	..	..
Sungei Patani	..	..
Langkawi	..	..
Kulim	..	..
	—	—
Total	..	103
	—	37
	—	—

## MAJOR OPERATIONS.

The number of major operations performed during the year was:—

Alor Star	..	..	..	..	..	..	141
Sungei Patani	..	..	..	..	..	..	59
Langkawi	..	..	..	..	..	..	24
Baling	..	..	..	..	..	..	..
							—
Total	..						224
							—

## X-RAY EXAMINATIONS.

The X-Ray plant is at the Hospital, Alor Star, where 337 photographs were taken during the year.

## VACCINATIONS.

The number of vaccinations done during the year was:—

## NORTH KEDAH.

Hospital and district vaccinations	..	..	..	4,529
Out-door Dispensary, Alor Star town	..	..	..	938
"    "    Yen	..	..	..	1,153
"    "    Changloon	..	..	..	168
"    "    Kuala Nerang	..	..	..	54
Prison sick ward, Alor Star	..	..	..	246

## CENTRAL KEDAH.

Hospital and district vaccinations, Kuala Muda	..	..	..	1,937
"    "    Baling	..	..	..	1,922
Out-door Dispensary, Sik	..	..	..	516

## SOUTH KEDAH.

Hospital and district vaccinations	..	..	..	1,908
Out-door Dispensary, Bandar Bahru	..	..	..	80

## LANGKAWI.

Hospital and district vaccinations	..	..	..	397
Estate vaccinations done by the Health Branch	..	..	..	753
<b>Total</b>	..	..	<b>14,601</b>	

## N.A.B. INJECTIONS.

		Indoor cases	Out-door cases	Total
Hospital, Alor Star	...	...	4,098	763
"    Langkawi	...	...	72	741
"    Sungei Patani	...	...	974	3,275
"    Baling	...	...	192	1,203
"    Kulim	...	...	1,730	1,010
<b>Total</b>	<b>...</b>	<b>7,066</b>	<b>6,992</b>	<b>14,058</b>

## PLACES VISITED BY MOTOR TRAVELLING DISPENSARIES.

## NORTH KEDAH.

*1st Route.* Hospital Alor Star; Kapala Batas; Jitra; 16th mile Kodiang Road; Changloon.

*2nd Route.* Hospital Alor Star; Langgar; Pokok Sena; Naka.

*3rd Route.* Hospital Alor Star; Telok Kechai; Kuala Kedah; Simpang Ampat; Kota Sarang Semut; Pendang.

## CENTRAL KEDAH.

*1st Route.* Hospital Sungei Patani; Sungei Lalang Police Station; Sungei Lalang Town; Bedong Police Station; Semiling School, Town and Police Station; Gurun quarry, P.W.D. Lines, Town, Police Station, and School; Guar Chempedak.

*2nd Route.* Hospital Sungei Patani; Sungei Pasir; Tikam Batu Police Station, Town, and School; Rantau Panjang; Kuala Muda P.W.D. Lines, Town, Police Station and School; Bukit Meriam School; Bukit Kechil School.

*3rd Route.* Hospital Sungei Patani; Kuala Ketil P.W.D. Lines, Police Station, Town, and School; Kim Seng P.W.D. Line; Tawar Town; Pulai; Bongor School and Village; Bandar P.W.D. Lines; Weng P.W.D. Lines; Kampongs on roads.

## SOUTH KEDAH.

*1st Route.* Hospital Kulim; Sungai Limau; Lunas; Sungai Sluang Town and School; Matang Durian School; Padang Serai School; Sungai Karangan; Merbau Pulas.

*2nd Route.* Hospital Kulim; Kelang Lama; Sungai Kob Town and School; Karangan; Pah How; Mahang Town and School.

*3rd Route.* Hospital Kulim; Kampong 4th mile; Junjong Town and School.

*4th Route.* Hospital Kulim; Trap Police Station and Town; Sungai Punti; Serdang; Ayer Puteh; Lubok Buntar Town and School; Sungai Kechil; Bandar Bahru; Selama Village.

## OFFICIALS.

The following table gives the Health Statistics of Government Officials, other than Subordinates, in Kedah:—

		European.	Asiatic.
Number of officials resident .. ..	..	67	72
Average number resident .. ..	..	43.53	65.62
Total number on sick list .. ..	..	15	26
Total number of days on sick list .. ..	..	174	289
Average daily number on sick list .. ..	..	.04	.07
Percentage of sick to number resident .. ..	..	22.22	36.11
Average number of days on sick list for each patient .. ..	..	11.60	11.12
Average sick time to each resident .. ..	..	2.59	4.01
Total number invalided .. ..	..	..	2
Percentage of invalidings to total resident .. ..	..	..	2.77
Total deaths .. ..	..	..	1
Percentage of deaths to total resident .. ..	..	..	1.39
Percentage of deaths to average number resident .. ..	..	..	1.52
Number of cases of sickness contracted away from residence .. ..	..	..	..

## APPENDICES.

## TABLES.

- I. Population, births, deaths, infantile deaths, and rate per mille.
- II. Comparative population figures by race and sex.
- III. Population by districts.
- IV. Population, births, deaths, and infantile mortality for chief towns in Kedah.
- V. Summary of births and birth rates by race and sex.
- VI. Summary of still-births by race and sex.
- VII. Summary of deaths and death rates by race and sex.
- VIII. Deaths grouped according to age, sex, and nationality.
- IX. Principal causes of deaths.
- X. Infantile mortality by race and sex.
- XI. Malarial notifications from Estates.
- XII. School figures.
- XIII. Spleen rates by districts among Malay and Chinese children.
- XIV. Population by nationality of European and Native holdings.
- XV. Deaths and death rates by nationality on European holdings.
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- XVII. Comparative tables of total Estates' population, total deaths, and death rates, 1933 and 1934.
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## DIAGRAMS AND CHARTS.

1. Percentage of deaths from certain diseases to all deaths in the State.
2. Percentage of cases of certain diseases to total treated in Government hospitals.
3. Percentage of deaths from certain diseases to total deaths in Government hospitals.
4. (a) Births, deaths, and infantile mortality rates, 1931—1934.  
 (b) Estate malaria and rainfall 1934.  
 (c) Chart showing prevailing diseases among Estate populations—admissions to Government hospitals with deaths.  
 (d) Chart showing prevailing diseases among Estate populations—admissions to Group hospitals with deaths.
5. Map of Kedah and Perlis.

TABLE I.

Population, Births, Deaths and Infantile Deaths, and Rate per mille, 1931—1934.

Year	Population	BIRTHS		DEATHS		INFANTILE DEATHS	
		Mid-Year	No.	Rate per mille	No.	Rate per mille	No.
1931 (Census year)	...	433,100	15,615	36.05	9,129	21.1	1,907
1932	...	443,560	16,182	36.5	8,173	18.4	1,940
1933	...	454,280	17,033	37.5	9,247	20.3	2,398
1934	...	465,270	16,763	36.03	10,165	21.8	2,475

TABLE II.

Comparative population figures by Race and Sex.

Race	Sex	CENSUS 1st April, 1921	CENSUS 1st April, 1931	Mid-year 1934
Malays	...	119,826 117,205	144,685 141,577	153,750 150,590
	Total ...	237,031	286,262	304,340
Chinese	...	47,419 11,984	53,787 24,628	56,131 29,966
	Total ...	59,403	78,415	86,097
Indians	...	22,815 10,189	32,210 18,614	36,330 22,125
	Total ...	33,004	50,824	58,455
Non-Asiatics	...	221 79	274 137	294 164
	Total ...	300	411	458
Others	...	4,489 4,331	6,875 6,904	7,895 8,025
	Total ...	8,820	13,779	15,920

TABLE III.  
Population by Districts.

Kota Star	...	...	149,990	(Malays approximately	...	75%)
Kubang Pasu	...	...	54,189	„	„	80%
Padang Trap	...	...	14,335	„	„	80%
Yen	...	...	25,495	„	„	80%
Kuala Muda	...	...	72,672	„	„	50%
Baling	...	...	51,880	„	„	65%
Kulim	...	...	54,500	{ Chinese	„	35%
Bandar Bahru	...	...	29,175	Malays	„	50%
Langkawi	...	...	13,034	„	„	90%
		Total	465,270			

TABLE IV.  
Population, Births, Deaths, and Infantile Mortality for Chief Towns in the State of Kedah, 1934.

Town	Estimated population	BIRTHS		DEATHS		INFANTILE DEATHS		
		Number	Rate per millee	Number	Rate per millee	Number	Rate per millee	
Alor Star	...	21,695	1,335	61	718	33	179	134
Sungei Patani	...	9,600	576	60	274	28	84	146
Kulim	...	6,816	415	61	213	31	73	175

TABLE V.  
Summary of Births and Birth Rates by Race and Sex, 1934.

Race	Males	Females	Total	Rate per mille
Malays	5,926	5,751	11,677	39
Chinese	1,654	1,479	3,133	36
Indians	822	784	1,606	27
Non-Asiatics	1	...	1	...
Others	167	179	346	21.6
Total	8,570	8,193	16,763	36.03

TABLE VI.  
Summary of Still-Births by Race and Sex, 1934.

Race	Males	Females	Total
Malays	490	296	786
Chinese	61	49	110
Indians	44	41	85
Non-Asiatics	...	...	...
Others	13	10	23
Total	608	396	1,004

TABLE VII.  
Summary of Deaths and Death Rates by Race and Sex, 1934.

Race				Males	Females	Total	Rate per millee
Malays	...	...	...	3,713	3,167	6,880	22.6
Chinese	...	...	...	1,416	602	2,018	23.4
Indians	...	...	...	554	412	966	17
Non-Asiatics	...	...	...	...	...	...	...
Others	...	...	...	159	142	301	19
	Total	...		5,842	4,323	10,165	21.8

TABLE VIII.  
Deaths grouped according to age, sex, and nationality, 1934.

Age groups		Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	Total
0	...	{ M F	...	...	98 89	419 312	88 65	4 8	609 474
4 weeks	...	{ M F	...	...	57 34	199 181	31 16	6 8	293 239
3 months	...	{ M F	...	...	60 35	167 129	16 11	7 3	250 178
6	,"	{ M F	...	...	50 41	136 126	41 30	5 3	232 200
1 year	...	{ M F	...	...	109 102	499 490	79 68	11 10	698 670
5 years	...	{ M F	...	...	68 38	232 194	21 28	9 11	330 271
10	,"	{ M F	...	...	21 26	87 85	11 3	5 2	124 116
15	,"	{ M F	...	...	13 10	82 67	6 18	4 ...	105 95
20	,"	{ M F	...	...	24 17	85 116	18 18	4 9	131 160
25	,"	{ M F	...	...	55 29	118 130	23 37	3 3	199 199
30	,"	{ M F	...	...	72 27	173 165	43 29	3 8	291 229
35	,"	{ M F	...	...	80 35	135 108	42 28	7 5	264 176
40	,"	{ M F	...	...	89 27	186 124	24 16	8 9	307 176
45	,"	{ M F	...	...	122 13	139 81	32 9	15 5	308 108
50	,"	{ M F	...	...	129 25	191 129	28 7	11 7	359 168
55	," and over	{ M F	...	...	369 54	865 730	51 29	57 51	1,342 864
	TOTAL	...	...	...	2,018	6,880	966	301	10,165

TABLE IX.  
Principal Causes of Deaths by Race, 1934.

		Malays	Chinese	Indians	Non-Asiatics	Others	Total
Tetanus	...	...	...	1	...	...	1
Diphtheria	...	...	5	...	...	...	5
Old age	...	674	112	30	...	34	850
Violence	...	8	7	5	...	2	22
Pregnancy and child birth	...	153	23	27	...	6	209
Premature birth	...	818	184	143	...	8	1,153
Malaria	...	129	108	51	...	24	312
Enteric	...	43	18	4	...	1	66
Dysentery and Diarrhoea	...	115	85	53	...	7	260
Influenza	...	19	4	4	...	1	28
Tuberculosis (Pulm.)	...	64	72	38	...	6	180
Tuberculosis (Others)	...	3	2	1	...	...	6
Leprosy	...	1	...	...	...	...	1
Syphilis	...	7	9	9	...	...	25
Ankylostomiasis	...	7	12	1	...	...	20
Fever unspecified	...	3,201	676	184	...	131	4,192
Cancer	...	4	11	2	...	1	18
Beri-beri	...	177	65	8	...	13	263
Heart and Circulation	...	21	47	101	...	10	179
Other lung diseases	...	865	197	99	...	13	1,174
Pneumonia	...	350	139	58	...	20	567
Convulsions	...	78	103	61	...	6	248
Other causes	...	143	139	86	...	18	386
Total	...	6,880	2,018	966	...	301	10,165

TABLE X.  
Infantile Mortality by Race and Sex, 1934.

Race		Males	Females	Total	Rate per millee
Malays	...	921	748	1,669	143
Chinese	...	265	199	464	148
Indians	...	176	122	298	188
Non-Asiatics	...	...	...	...	...
Others	...	22	22	44	
Total	...	1,384	1,091	2,475	148

TABLE XI.  
A.  
Malarial Notifications from Estates, 1930—1934.

Year	Reported to be occurred in		Total
	Hospitals	Lines	
1930	3,442	16,495	19,937
1931	3,229	9,600	12,829
1932	2,917	7,891	10,808
1933	4,894	9,484	14,378
1934	4,846 *	9,199	14,045

## B.

Holding.	Population.	Cases notified.		Total.	Malarial deaths.		Total.	Total deaths.		Percentage cases admitted to Hospital.	Case incidence per mille.	Case fatality percent.		Percentage malarial deaths of total deaths.				
		Hospitals.	Lines.		Hospitals.	Lines.		Hospitals.	Lines.			Hospital.	Lines.	Total.				
Europeans	29,335	5,053	7,817	12,870	51	6	57	424	168	592	39.2%	438	1	0.076	0.44	12.3	3.6	9.1
Asiatic	14,960	255	921	1,176	10	15	25	37	61	98	22.6%	78	3.9	1.6	2.1	27.0	24.6	25.5
Total	44,295	5,308*	8,738	14,045	61	21	82	461	229	690	37.7	317	1.1	0.24	0.58	13.2	9.1	11.8

\* The apparent discrepancy of these figures is explained by the fact that Table XI (a) is prepared from Estate managers' returns, while Table XI (b) is prepared from hospital returns. The increase in the latter is due to improved diagnosis at the hospitals.

TABLE XII.

## (a) Malay School figures for 1934.

Number of children on the registers	..	..	..	2,527
,, „ „ inspected	..	..	..	2,197

Diseases	No. of Cases	Percentage
Spleen enlargement	125	5.69
Anæmia	64	2.91
Not vaccinated	17	.77
Eye diseases	3	.14
Ear diseases	5	.23
Scabies	34	1.55
Other skin diseases	51	2.32
Yaws	28	1.27
Caries class I	317	14.43
„ „ II	254	11.11
„ „ III	221	10.06

## (b) Chinese and other school figures for 1934.

Number of schools inspected	..	..	..	22
„ „ children on the registers	..	..	..	1,293
„ „ children inspected	..	..	..	1,080

Diseases	No. of Cases	Percentage
Spleen enlargement	28	2.59
Anæmia	60	5.55
Not vaccinated	21	1.94
Ear diseases	2	.18
Scabies	97	8.98
Yaws	2	.18
Caries class I	145	13.42
„ „ II	156	17.22
„ „ III	447	41.38

TABLE XIII.

Spleen Rates by Districts among Malays and Chinese Children, 1933 and 1934.

## (a) MALAYS.

District	Examined		Enlarged spleens		Spleen rate	
	1933	1934	1933	1934	1933	1934
Jitra	...	...	774	234	55	11
Kuala Nerang	...	...	71	94	12	28
Kota Star	...	...	633	623	34	45
Baling	...	...	164	625	18	30
Kulim	...	...	49	81	2	1
Kuala Muda	...	...	554	809	34	50
Bandar Bharu	...	...	77	...	4	...
Yen	...	...	119	143	8	16

## (b) CHINESE.

District	Examined		Enlarged spleens		Spleen rate	
	1933	1934	1933	1934	1933	1934
Jitra	...	...	56	57	...	3
Kota Star	...	...	68	154	2	2
Baling	...	...	29	72	2	2
Kulim	...	...	358	346	18	4
Kuala Muda	...	...	200	376	2	12
Bandar Bahru	...	...	75	158	9	4
Yen	...	...	33	49	2	2

TABLE XIV.

ESTATES' FIGURES FOR 1934.

## (a) Population by nationality of European holdings.

Nationalities	Labourers		Dependants		Infants	G. Total
	Male	Female	Adults	Children		
Malays	...	...	1,059	930	229	734
Indians	...	...	11,160	4,659	1,942	5,641
Chinese	...	...	649	62	180	141
Javanese	...	...	60	13	4	7
Others	...	...	77	2	43	24
Total	...	13,005	5,666	2,399	6,547	1,718
						29,335

## (b) Population by nationality of Native holdings.

Nationalities	Labourers		Dependents		Infants	G. Total	
	Male	Female	Adults	Children			
Malays	...	4,171	2,786	194	1,425	166	8,742
Indians	...	1,407	453	119	398	46	2,423
Chinese	...	2,771	183	218	335	68	3,575
Javanese	...	54	30	4	20	3	111
Others	...	85	4	10	9	1	109
Total	...	8,488	3,456	545	2,187	284	14,960

TABLE XV.

## (a) Deaths by nationality on European holdings.

Nationalities	Labourers	Dependents		Infants	Total deaths	
		Adults	Children			
Malays	...	6	11	8	14	39
Indians	...	15	13	17	79	124
Chinese	...	3	...	...	2	5
Javanese	...	...	...	...	...	...
Others	...	...	...	...	...	...
Total	...	24	24	25	95	168

## (b) Deaths by nationality in Group Hospitals from European holdings.

Nationalities	Labourers	Dependents		Infants	Total deaths
		Adults	Children		
Malays	...	4	...	...	4
Indians	...	99	37	117	121
Chinese	...	11	...	...	11
Javanese	...	...	...	...	...
Others	...	1	...	...	1
Total	...	115	37	117	121
					390

## (c) Deaths by nationality in Government hospitals from European holdings.

Nationalities	Labourers	Dependents		Infants	Total deaths
		Adults	Children		
Malays	...	...	...	...	...
Indians	...	24	2	3	5
Chinese	...	...	...	...	...
Javanese	...	...	...	...	...
Others	...	...	...	...	...
Total	...	24	2	3	5
					34

## (d) Deaths rate by nationality from European Estates.

Nationalities			Total population	Total deaths	Death rates
Malays	...	...	3,146	43	13.6
Indians	...	...	24,901	532	21.3
Chinese	...	...	1,053	16	15.2
Javanese	...	...	85	...	...
Others	...	...	150	1	6.6
	Total	...	29,335	592	20.2

## (e) Labourers death rates by nationality for European holdings.

Nationalities			Labourers	Deaths	Death rates
Malays	...	...	1,989	10	5.02
Indians	...	...	15,819	138	8.7
Chinese	...	...	711	14	19.7
Javanese	...	...	73	...	...
Others	...	...	79	1	11.6
	Total	...	18,671	163	8.8

TABLE XVI.

## (a) Deaths by nationalities on Native holdings.

Nationalities	Labourers	Dependents		Infants	Total deaths
		Adults	Children		
Malays	12	7	7	13	39
Indians	1	...	...	11	12
Chinese	5	...	...	3	8
Javanese	...	...	...	2	2
Others	...	...	...	...	...
	Total	18	7	7	29
					61

## (b) Deaths by nationalities in Group Hospitals from Asiatic holdings.

Nationalities	Labourers	Dependents		Infants	Total
		Adults	Children		
Malays	...	...	...	...	...
Indians	13	1	4	3	21
Chinese	12	2	1	...	15
Javanese	...	...	...	...	...
Others	...	...	...	...	...
	Total	25	3	5	36

(c) There was only one Indian (labourer) death recorded in a Government Hospital from Asiatic holdings.

(d) Death rates by nationalities for Asiatic holdings.

Nationalities			Population	Deaths	Death rates
Malays	...	...	8,742	39	4.8
Indians	...	...	2,423	34	14.00
Chinese	...	...	3,575	23	6.4
Javanese	...	...	111	2	18.0
Others	...	...	109	...	...
Total		...	14,960	98	6.5

(e) Labourers death rates by nationalities for Asiatic holdings.

Nationalities			Population	Deaths	Death rates
Malays	...	...	6,957	12	1.7
Indians	...	...	1,860	15	8.2
Chinese	...	...	2,954	17	5.7
Javanese	...	...	84	...	...
Others	...	...	89	...	...
Total		...	11,944	44	3.7

TABLE XVII.

Comparative Tables of total Estates' population, total deaths, and death rate for the years 1933 and 1934.

(a) 1933.

No.	Class of holdings	Population	Deaths in lines	Deaths in Hospitals	Total Deaths	Death rate	Total death rate
1	European owned	30,818	199	382	581	18.85	...
2	Native owned	11,079	39	7	46	4.11	...
	Total	41,897	238	389	627	...	14.9

(b) 1934.

No.	Class of holdings	Population	Deaths in lines	Deaths in Hospitals		Total Deaths	Death rate	Total death rate
				Govt.	Group			
1	European owned	29,335	168	34	390	592	20.2	...
2	Native owned	14,960	61	1	36	98	6.5	...
	Total	44,295	229	35	426	690	...	15.5

TABLE XVIII.  
Hospital admissions for 1934.

Class of Estates	Government	Group	Total
Europeans owned	440	14,594	15,034
Asiatic owned	55	970	1,025
Total	495	15,564	16,059

TABLE XIX.

(a) Birth rates and infantile mortality rates by nationalities on European Estates.

Nationalities	Population	Births	Birth rate	Infantile deaths	Infantile rate
Malays	3,146	56	17.6	14	250.00
Indians	24,901	957	38.4	205	214.00
Chinese	1,053	7	6.9	2	286.00
Javanese	85	...	...	...	...
Others	150	...	...	...	...
Total	29,335	1,020	34.7	221	217.00

(b) Asiatic.

Nationalities	Population	Births	Birth rate	Infantile deaths	Infantile rate
Malays	8,742	50	5.7	13	260.00
Indians	2,423	39	16.1	14	359.00
Chinese	3,575	24	6.7	3	125.00
Javanese	111	4	36.0	2	500.00
Others	109	...	...	...	...
Total	14,960	117	7.8	32	273.00

TABLE XX.

## GOVERNMENT PATHOLOGICAL LABORATORY.

1934 saw a still greater increase in the work of the laboratory. In 1932 the number of tests carried out were 1,174; this figure rose to 4,587 in 1933; and in 1934 it is further enhanced to 8,082—very nearly double that of 1933. This increase was partly due to the larger amount of samples sent in by the Group Hospitals since May 1934 when Wassermann and Kahn reaction were carried out gratis. During the whole of 1933 these Group Hospitals sent in a total of 210 samples while in 1934 they sent more than four times this number.

The following is a brief outline of the work done in the Government Pathological Laboratory during 1934:—

Of this total 905 tests were carried out for the Group Hospitals, as follows:—

TABLE XXI.

ANNUAL RETURN OF INDOOR PATIENTS, TREATED IN HOSPITALS  
AND PRISON SICK WARDS IN KEDAH, DURING 1934 A. D.

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>INFECTIVE DISEASES.</b>						
Cerebrospinal fever	...	...	1	...	1	...
Chicken-pox	...	2	6	...	8	...
Diphtheria	...	1	7	5	8	...
Dysentery Amœbic	...	5	143	15	148	5
" Bacillary	...	...	32	7	32	1
Enteric Fever	...	...	10	3	10	...
Erysipelas	...	...	17	...	17	...
Gonorrhœa	...	16	303	...	319	16
Gonorrhœal Rheumatism	...	1	23	...	24	...
Gonorrhœal Conjunctivitis	...	1	14	...	15	1
Influenza	...	8	188	...	196	1
Leprosy	...	...	58	...	58	4
<b>Malaria :—</b>						
(a) Benign Tertian	...	35	1,525	33	1,560	66
(b) Quartan	...	1	68	...	69	5
(c) Malignant Tertian	...	22	1,033	54	1,055	30
(d) Mixed Infection	...	...	37	6	37	...
(e) Type Undiagnosed	...	6	357	4	363	12
(f) Malarial Cachexia	...	4	151	10	155	5
(g) Blackwater Fever	...	...	...	...	...	...
Measles	...	...	31	...	31	1
Mumps	...	...	5	...	5	...
Phagedœna	...	...	1	...	1	...
Pneumonia	...	5	161	69	166	9
Pyæmia	...	...	5	...	5	1
Pyrexia of uncertain origin	...	2	92	...	94	4
Rheumatism	...	1	40	...	41	5
Septicæmia	...	...	14	20	14	...
<b>Syphilis :—</b>						
(a) Primary	...	3	117	...	120	5
(b) Secondary	...	24	407	7	431	57
(c) Inherited	...	...	27	2	27	7
(d) Congenital	...	1	...	...	1	...
(e) Tertiary	...	19	26	1	45	...
Tetanus :—	...	...	5	4	5	...
<b>Tuberculosis :—</b>						
(a) General	...	...	22	2	22	5
(b) Phthisis	...	41	288	106	329	32
Whooping Cough	...	...	6	...	6	...
Yaws	...	4	35	...	39	...
Other Infective Diseases	...	1	1	1	2	...
<b>INTOXICATIONS.</b>						
Alcoholism	...	...	31	...	31	...
Morphinism	...	...	38	...	38	...
Opium habit	...	...	57	...	57	3
Other intoxications	...	...	15	...	15	...

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>GENERAL DISEASES.</b>						
Anæmia	...	4	44	1	48	1
Beri-beri	...	3	30	6	33	4
Diabetes	...	...	10	...	10	...
Debility	...	1	5	...	6	1
Gout	...	...	1	...	1	1
Toxæmia	...	...	...	1	...	...
Osteo-arthritides	...	4	...	...	4	...
Other General Diseases	...	3	23	10	26	6
<b>CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.</b>						
Malformations	...	...	3	...	3	...
Imperforate Anus	...	...	2	1	2	...
New Growth, Non-malignant	...	2	11	...	13	...
Do. Malignant	...	4	57	26	61	2
Cyst	...	1	12	2	13	1
Other Morbid Conditions	...	...	3	...	3	...
<b>DISEASES OF THE NERVOUS SYSTEM.</b>						
<b>Nerves :—</b>						
Neuritis	...	1	38	...	39	12
Multiple Neuritis	...	...	5	1	5	2
Other Diseases of the Nerves	...	...	35	7	35	3
<b>Spinal Cord and Membranes :—</b>						
Myelitis	...	...	2	1	2	1
Locomotor ataxia	...	2	9	...	11	4
Other Diseases of the Spinal Cord and Membranes	...	2	4	2	6	2
<b>Brain and Membranes :—</b>						
Meningitis	...	...	5	4	5	...
Hæmorrhage	...	...	5	9	5	...
Abscess	...	...	7	...	7	5
Other Diseases of Brain and Membranes	...	...	5	1	5	...
<b>Nervous Disorders :—</b>						
Apoplexy	...	...	7	4	7	...
Paraplegia	...	8	13	5	21	4
Hemiplegia	...	5	12	1	17	6
Landry's Paralysis	...	...	1	1	1	...
Convulsions	...	1	14	10	15	...
Epilepsy	...	3	17	1	20	4
Neuralgia	...	...	16	...	16	...
Hysteria	...	...	4	...	4	...
Neurasthenia	...	...	1	...	1	...
Other Nervous Disorders	...	17	36	2	53	5
<b>Mental Diseases :—</b>						
Idiocy	...	...	2	...	2	...
Mania	...	...	36	...	36	1
Melancholia	...	1	1	...	2	...
Dementia	...	1	2	...	3	...
Other Mental Diseases	...	3	74	1	77	10
<b>DISEASES OF THE EYE.</b>						
Conjunctivitis	...	3	53	...	56	3
Trachoma	...	1	8	...	9	1
Keratitis	...	1	1	...	2	...

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE EYE.—<i>Contd.</i></b>						
Ulcer of Cornea	...	3	26	...	29	4
Iritis	...	2	4	...	6	...
Glaucoma	...	1	...	...	1	...
Optic atrophy	...	...	3	...	3	...
Blindness	...	3	...	...	3	2
Cataract	...	6	13	...	19	5
Pterygium...	...	...	1	...	1	1
Panophthalmitis	...	...	3	...	3	...
Errors in refraction	...	...	1	...	1	...
Entropion	...	...	2	...	2	...
Other Eye Diseases	...	9	29	...	38	13
<b>DISEASES OF THE EAR.</b>						
Inflammation	...	...	16	...	16	...
Other Ear Diseases	...	...	23	...	23	...
<b>DISEASES OF THE NOSE.</b>						
Other Nose Diseases	...	...	9	...	9	...
<b>DISEASES OF THE CIRCULATORY SYSTEM.</b>						
Pericarditis	...	...	6	4	6	...
Endocarditis	...	...	4	2	4	...
Valvular Disease	...	8	39	22	47	2
Myocarditis	...	1	31	8	32	3
Dilatation of Heart	...	1	6	3	7	2
Syncope	...	...	5	4	5	...
Disordered action of Heart	...	...	26	3	26	8
Aneurysm	...	...	1	...	1	...
Auricular fibrillation	...	...	2	2	2	...
Phlebitis	...	...	2	...	2	...
Aortic regurgitation	...	...	...	2	...	...
Varix	...	...	3	...	3	...
Other Diseases of the System	...	4	47	9	51	6
<b>DISEASES OF THE RESPIRATORY SYSTEM.</b>						
Asthma	...	5	155	5	160	3
Coryza	...	1	...	...	1	...
Laryngitis	...	...	13	...	13	...
Bronchitis	...	15	340	2	355	14
Broncho-pneumonia	...	1	49	15	50	2
Emphysema	...	...	2	1	2	...
Pleurisy	...	2	27	2	29	3
Empyema	...	1	3	1	4	...
Other Diseases of the System	...	1	59	2	60	2
<b>DISEASES OF THE DIGESTIVE SYSTEM.</b>						
Stomatitis	...	...	4	...	4	...
Pyorrhœa alveolaris	...	1	3	...	4	...
Caries of tooth	...	...	8	...	8	...
Ulceration of tongue	...	...	1	...	1	...
Sore Throat	...	...	3	...	3	...
Tonsillitis	...	3	14	...	17	...
Inflammation of pharynx	...	...	8	...	8	...
Gastritis	...	7	56	...	63	2
Ulceration of stomach	...	2	41	2	43	3
Dyspepsia	...	...	20	...	20	...
Enteritis	...	...	43	4	43	5
Appendicitis	...	2	17	...	19	1

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)</b>						
Colitis ...	...	1	4	2	5	...
Ulceration of intestines ...	...	...	6	2	6	1
Sprue ...	...	1	1	2	2	...
Hernia ...	...	1	37	2	38	3
Intestinal obstruction ...	...	...	5	2	5	1
Diarrhoea ...	...	...	72	2	72	9
Constipation ...	...	...	45	...	45	...
Colic ...	...	1	34	...	35	...
Ischio-rectal abscess ...	...	...	6	...	6	...
Fissure of anus ...	...	...	1	...	1	...
Fistula in ano ...	...	2	9	...	11	1
Hemorrhoids ...	...	...	32	...	32	1
Hepatitis ...	...	1	24	2	25	2
Abscess of liver ...	...	...	14	2	14	...
Cirrhosis of liver ...	...	2	43	22	45	3
Jaundice ...	...	...	17	2	17	1
Gall stones ...	...	...	2	...	2	...
Peritonitis ...	...	1	12	10	13	...
Ascites of unknown origin ...	...	...	4	1	4	...
Other diseases of the System ...	4	48	5	52	3	
<b>DISEASES OF THE LYMPHATIC SYSTEM.</b>						
Spleen, inflammation ...	...	...	2	...	2	1
Spleen rupture ...	...	...	2	1	2	...
Bubo ...	...	1	85	...	86	7
Suppuration of Glands ...	...	...	2	...	2	...
Lymphangitis ...	...	...	6	...	6	...
Other Diseases of the System ...	...	...	17	...	17	1
<b>DISEASES OF THE THYROID BODY</b>						
... ...	...	4	...	4	...	
<b>DISEASES OF THE URINARY SYSTEM.</b>						
Acute nephritis ...	...	3	40	15	43	6
Bacilluria ...	...	1	2	...	3	1
Bright's disease ...	...	3	21	8	24	2
Pyonephrosis ...	...	...	...	1	...	...
Cystitis ...	...	3	17	...	20	...
Calculus ...	...	2	9	1	11	...
Retention of urine ...	...	...	4	...	4	...
Incontinence of urine ...	...	...	1	...	1	...
Other diseases of the System ...	...	...	17	1	17	1
<b>DISEASES OF THE GENERATIVE SYSTEM.</b>						
<i>Male :—</i>						
Stricture ...	...	1	15	...	16	1
Urethral fistula ...	...	...	2	...	2	...
Paraphimosis ...	...	...	3	...	3	...
Phimosis ...	...	...	13	...	13	1
Ulcer Penis ...	...	1	8	...	9	2
Rupture of urethra ...	...	...	1	...	1	...
Soft chancre ...	...	...	15	...	15	1
Scrotom, Abscess ...	...	...	1	...	1	...
Hydrocele ...	...	...	16	...	16	...
Orchitis ...	...	...	14	...	14	1
Epididymitis ...	...	...	13	...	13	2
Other diseases, Male Organs ...	2	16	...	18	...	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE GENERATIVE SYSTEM—(Contd.)</b>						
<i>Female :—</i>						
Metritis	...	...	1	1	...	
Erosion of cervix	...	...	9	9	...	1
Displacements and distortions	...	...	5	5	...	
Vulva, Inflammation	...	...	1	1	...	
do. Abscess	...	...	1	1	...	
do. Ulcer	...	...	1	1	...	
do. Soft chancre	...	...	3	3	...	
Vaginitis	...	...	10	10	...	
Other diseases, Female Organs	...	37	...	37	1	
<b>AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.</b>						
Natural labour	...	...	8	261	269	10
Difficult labour	...	...	1	12	13	1
Abortion	...	...	1	12	13	2
Retention of placenta	...	...	5	1	5	...
Premature birth	...	...	...	12	12	...
Pregnancy	...	...	1	...	1	...
Puerperal sapraëmia	...	...	9	2	9	...
Other affections	...	3	55	6	58	1
<b>DISEASES OF THE FEMALE BREAST</b>						
Breast	...	...	...	2	2	...
<b>DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.</b>						
Periostitis	...	...	...	3	3	...
Caries of bones	...	...	...	6	6	...
Lumbago	...	...	...	3	3	1
Necrosis of bones	...	...	...	3	3	...
Osteomyelitis	...	...	1	4	5	...
Arthritis	...	...	8	47	55	4
Synovitis	...	...	3	19	22	...
Ankylosis	...	...	...	3	3	...
Myalgia	...	...	1	24	25	1
Other diseases of the Bones and Organs of Locomotion	...	1	33	1	34	2
<b>DISEASES OF THE CONNECTIVE TISSUE.</b>						
Cellulitis	...	...	9	60	69	4
Abscess	...	...	9	208	217	5
Gangrene	...	...	2	10	12	2
Oedema	...	...	1	3	4	1
Other Diseases of the Connective Tissue	...	...	3	34	37	2
<b>DISEASES OF THE SKIN.</b>						
Impetigo contagiosa	...	1	11	...	12	...
Urticaria	...	...	5	...	5	1
Dermatitis	...	...	2	2	2	...
Eczema	...	1	53	...	54	3
Boil	...	...	17	...	17	1
Carbuncle	...	...	9	1	9	...
Herpes	...	...	9	...	9	...
Herpes Zoster	...	...	5	...	5	...
Psoriasis	...	...	3	...	3	...
Ulcer	...	62	641	...	703	28
Other Skin Diseases	...	2	43	2	45	2

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>INJURIES.</b>						
Burns and scalds ...	...	18	1	18	...	
Dog bite ...	...	19	...	19	1	
Monkey bite ...	...	2	...	2	...	
Snake bite ...	...	3	...	3	2	
Wounds ...	27	942	11	969	21	
Sprains ...	1	24	...	25	...	
Fractures, Simple ...	8	111	...	119	13	
do. Compound ...	1	23	4	24	1	
Dislocations ...	...	9	...	9	...	
Other local injuries ...	11	477	4	488	13	
<b>POISONS.</b>						
Alcohol ...	...	5	...	5	...	
Opium ...	...	9	...	9	1	
Datura ...	...	1	...	1	...	
Other Poisons ...	...	10	...	10	...	
<b>PARASITES.</b>						
Ascaris Lumbricoides ...	15	548	...	563	21	
Ankylostomiasis ...	28	729	11	757	27	
Oxyuris Vermicularis ...	...	4	...	4	...	
Filaria ...	2	6	...	8	...	
Other Nematoda ...	...	1	...	1	...	
Ringworm ...	...	5	...	5	1	
Tinea Imbricata ...	1	6	...	7	1	
Scabies ...	1	44	...	45	1	
<b>OLD AGE.</b>						
Senility ...	1	8	6	9	2	
<b>ILL-DEFINED DISEASES.</b>						
Marasmus ...	...	11	3	11	...	
Heart failure ...	...	...	45	...	...	
<b>UNDER OBSERVATION</b>						
No DISCOVERABLE DISEASE ...	16	334	...	350	2	
TOTAL ...	646	13,721	739	14,367	695	

## TABLE XXII.

## CLIMATOLOGICAL SUMMARY.

Station—ALOR STAR, KEDAH.

Lat.  $6^{\circ} 09'$  N.  
Long.  $100^{\circ} 12'$  E.

Height above M.S.L. 10 Ft.

TABLE XXXIII.

ABSTRACT OF THERMOMETRICAL AND RAINFALL OBSERVATIONS TAKEN AT FOUR STATIONS OF THE STATES OF KEDAH  
DURING THE YEAR 1934.

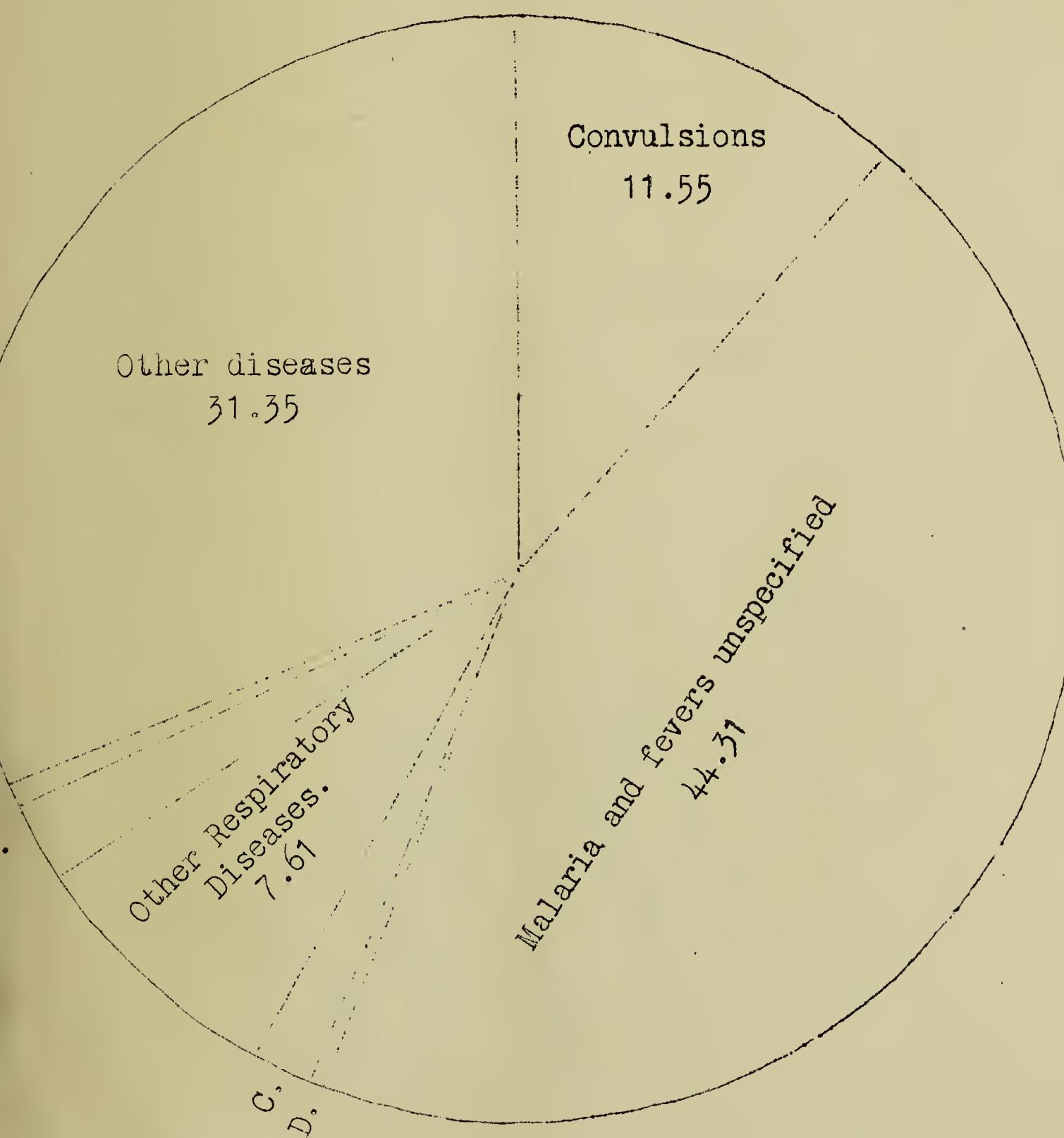
MONTH	PULAU LANGKAWI			BALING			SUNGEI PATANI			KULIM		
	9 a.m.		6 a.m. and 6 p.m.	9 a.m.		6 a.m. and 6 p.m.	9 a.m.		6 a.m. and 6 p.m.	9 a.m.		6 a.m. and 6 p.m.
	Thermometer		Rainfall	Thermometer		Rainfall	Thermometer		Rainfall	Thermometer		Rainfall
	Maximum	Minimum	Range	Maximum	Minimum	Range	Maximum	Minimum	Range	Maximum	Minimum	Range
JANUARY	...	...	...	88.5	73.8	14.7	1.82	87.9	70.0	17.9	4.50	88.5
FEBRUARY	...	...	...	88.5	75.0	13.5	2.60	88.9	70.5	18.4	5.34	89.3
MARCH	...	...	...	89.2	75.3	13.9	1.99	90.0	71.4	18.6	5.55	91.2
APRIL	...	...	...	88.4	76.2	12.2	9.72	90.5	72.6	17.9	11.36	90.4
MAY	...	...	...	87.7	...	...	6.55	88.9	73.1	15.8	6.16	89.5
JUNE	...	...	...	86.8	75.4	11.4	10.29	91.4	72.2	19.2	15.19	89.8
JULY	...	...	...	86.7	74.6	12.1	18.12	...	72.7	...	7.00	89.2
AUGUST	...	...	...	86.3	74.4	11.9	15.58	89.2	72.1	17.1	7.36	87.8
SEPTEMBER	...	...	...	86.2	74.0	12.2	16.47	87.9	72.3	15.6	12.84	87.8
OCTOBER	...	...	...	86.2	74.6	11.6	19.17	87.7	71.8	15.9	16.63	87.3
NOVEMBER	...	...	...	86.2	74.4	11.8	10.23	87.5	71.2	16.3	12.68	87.5
DECEMBER	...	...	...	87.7	73.3	14.4	0.50	89.4	69.0	20.4	4.66	89.7
	Mean	...	...	87.4	...	...	...	...	71.6	...	...	89.0
	...	...	...	...	...	...	...	...	...	...	...	109.27
	Total Rainfall	...	...	...	...	...	...	...	...	...	...	123.35
	Mean Temperature	...	...	...	...	...	...	...	...	...	...	80.9
												138.59

DIAGRAM - 1.

PERCENTAGE OF DEATHS FROM CERTAIN DISEASES TO  
TOTAL DEATHS IN THE STATE.

\*\*\*

TOTAL DEATHS IN THE STATE = 10,165.



A.	Other Diseases of Digestive System ..	.65
B.	Dysentery .. ..	2.56
C.	Pulmonary Tuberculosis ..	1.77
D.	Ankylostomiasis ..	.20



DIAGRAM - 2

PERCENTAGE OF CASES OF CERTAIN DISEASES TO  
TOTAL TREATED IN GOVERNMENT HOSPITALS.

---

TOTAL TREATED - 14,367.

Other diseases  
30.49

Malaria  
22.54

Injuries  
11.67

Ulcers  
4.89

Ankylostomiasis  
5.21

Other intestinal  
parasites

Pulm. Tuberculosis  
2.44

Other  
diseases

Respiratory  
Diseases

Diseases  
of the  
digestive  
system

Other  
diseases

Venerable  
Diseases

7.25



DIAGRAM 3.

PERCENTAGE OF DEATHS OF CERTAIN DISEASES TO

TOTAL DEATHS IN GOVERNMENT HOSPITALS.

\*\*\*

TOTAL DEATHS IN GOVERNMENT HOSPITALS - 739.

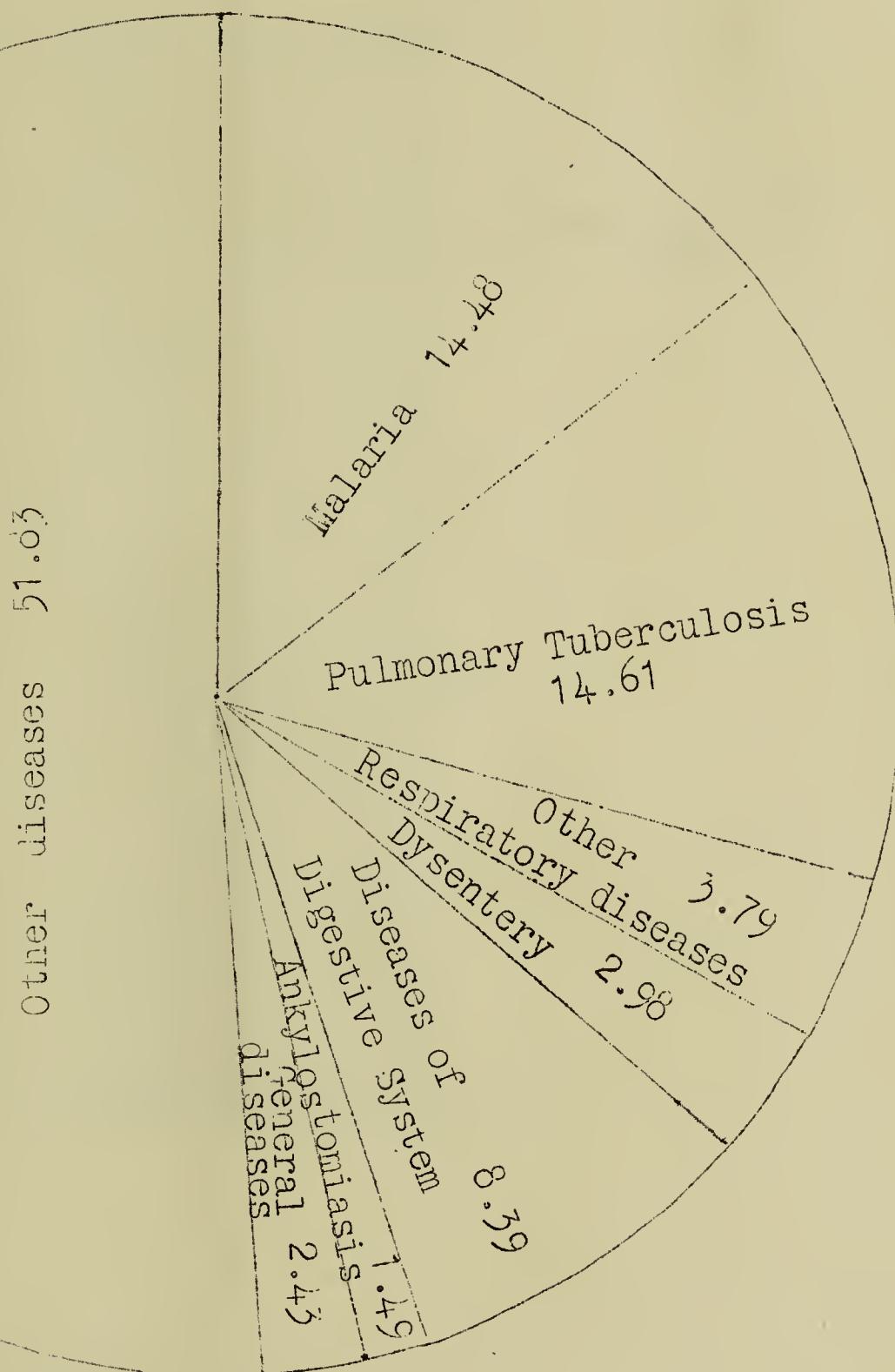
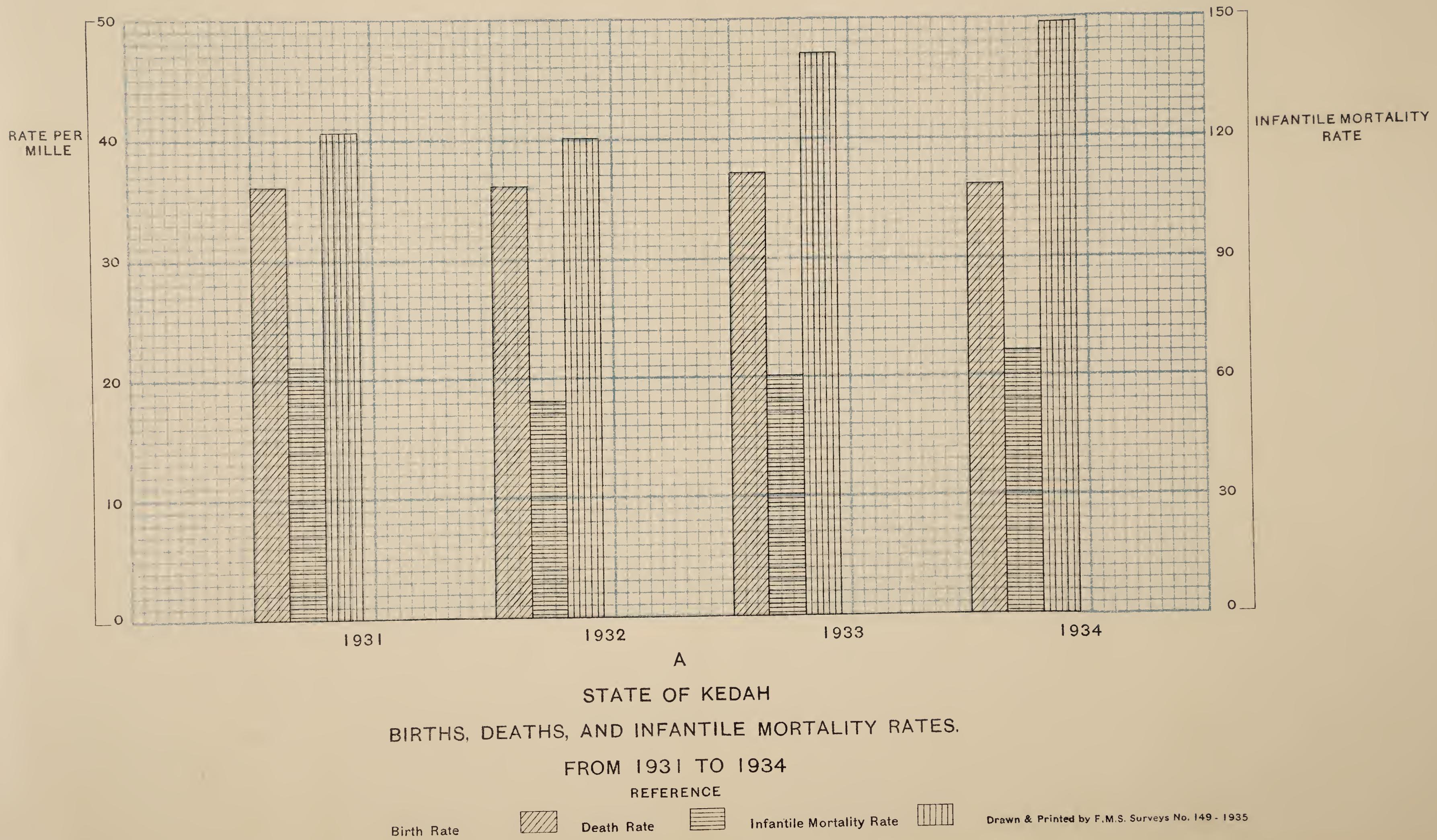
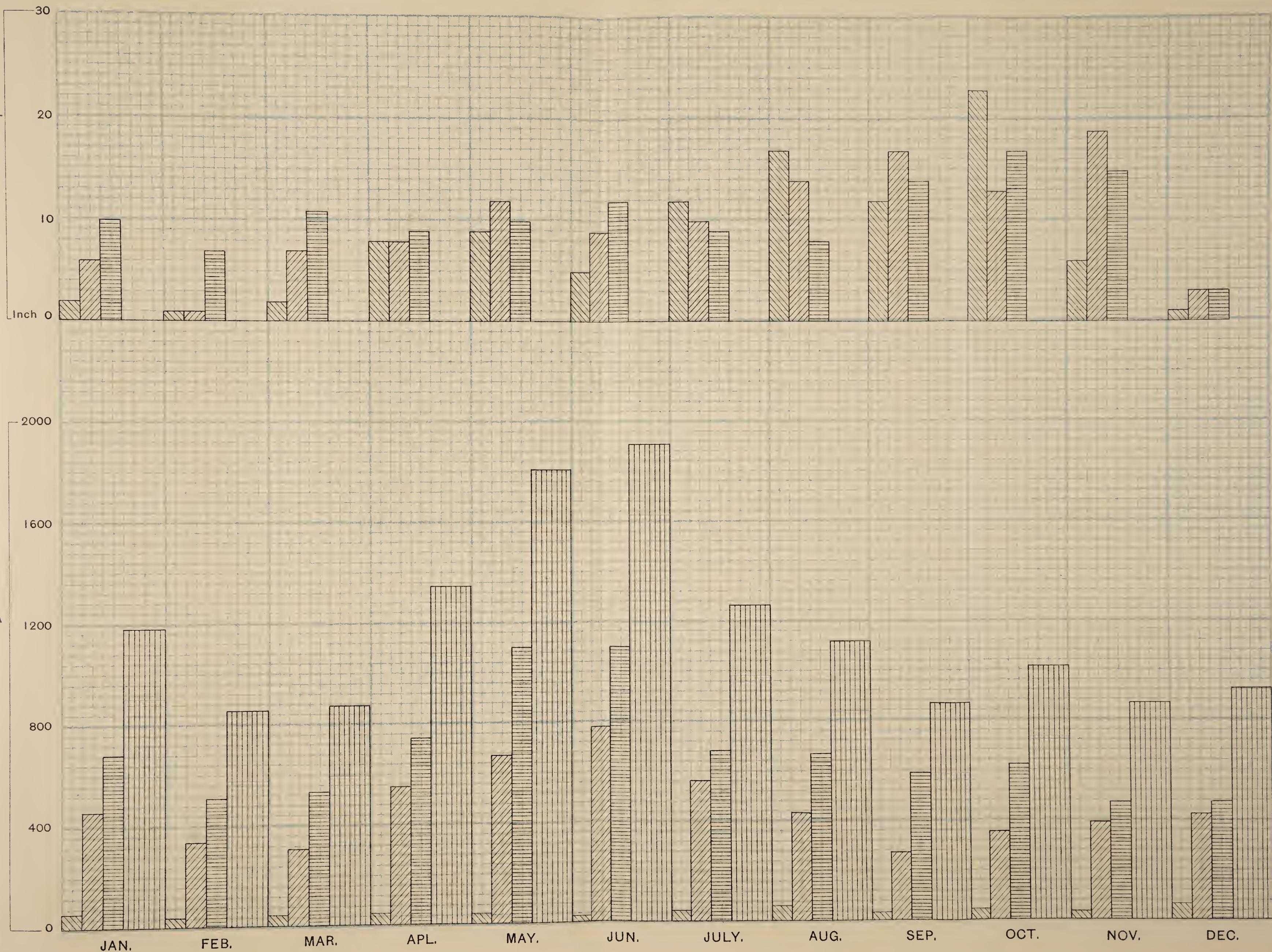




CHART 4







B

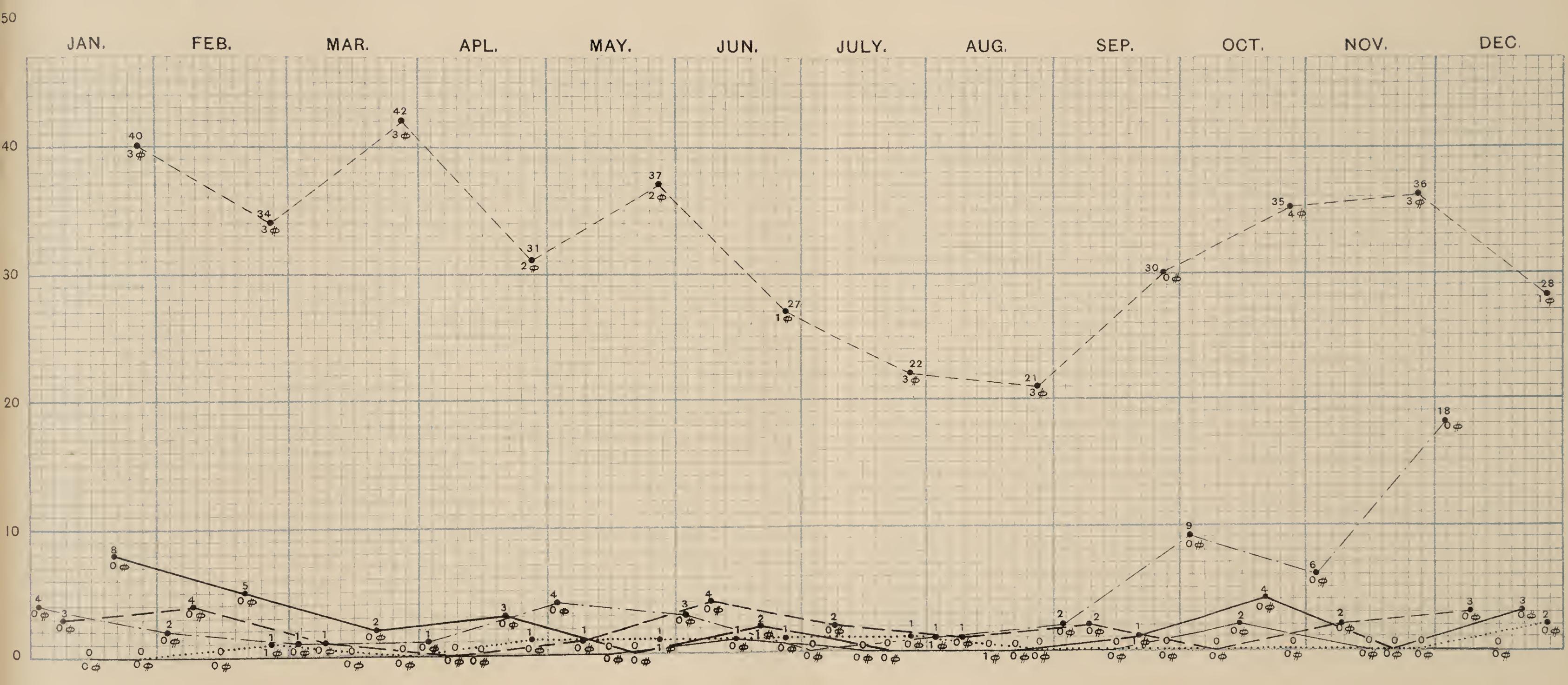
ESTATE MALARIA AND RAINFALL  
FOR 1934  
(AS REPORTED BY ESTATES)

REFERENCE

North Kedah	■	South Kedah	■■■■
Central Kedah	■■■■	Total	■■■■■



CHART 4



C

CHART SHOWING PREVAILING DISEASES AMONG ESTATE POPULATION

ADMISSIONS TO GOVT. HOSPITALS WITH DEATHS FOR THE PERIOD

JANUARY 1934 TO DECEMBER 1934

REFERENCE

Other Diseases	— — —	Dysentery	—
Malaria	— — —	Other Bowel Diseases	—
Ankylostomiasis	— — —	Deaths	— \$ —
Pneumonia	.....		



CHART 4

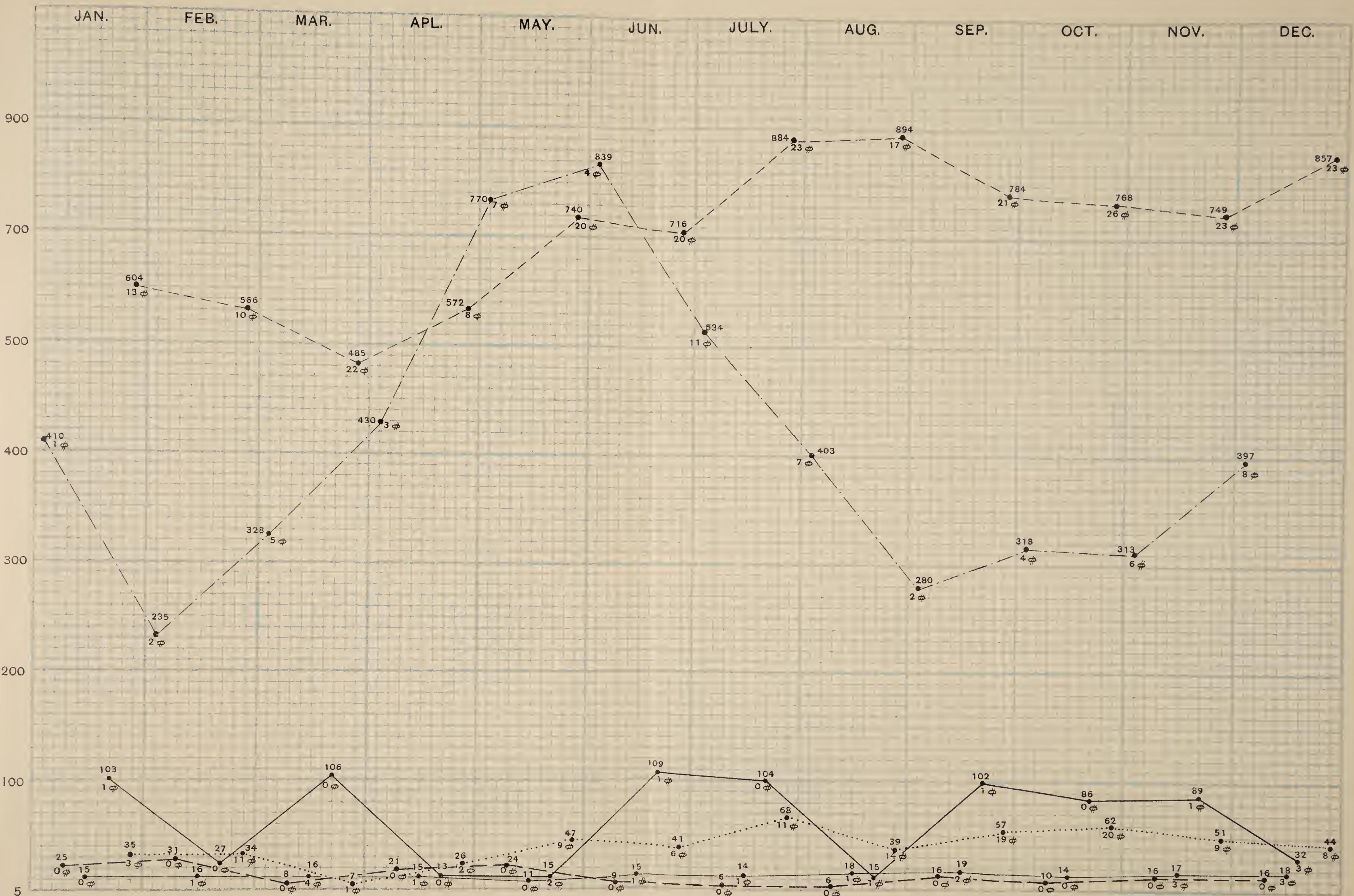


CHART SHOWING PREVAILING DISEASES AMONG ESTATE POPULATION  
ADMISSIONS TO GROUP HOSPITALS WITH DEATHS FOR THE PERIOD  
JANUARY 1934 TO DECEMBER 1934

## REFERENCE

Other Diseases	— — —	Dysentery	— — —
Malaria	— — —	Other Bowel Diseases	— — —
Ankylostomiasis	— — —	Deaths	— — —
Pneumonia	.....		φ

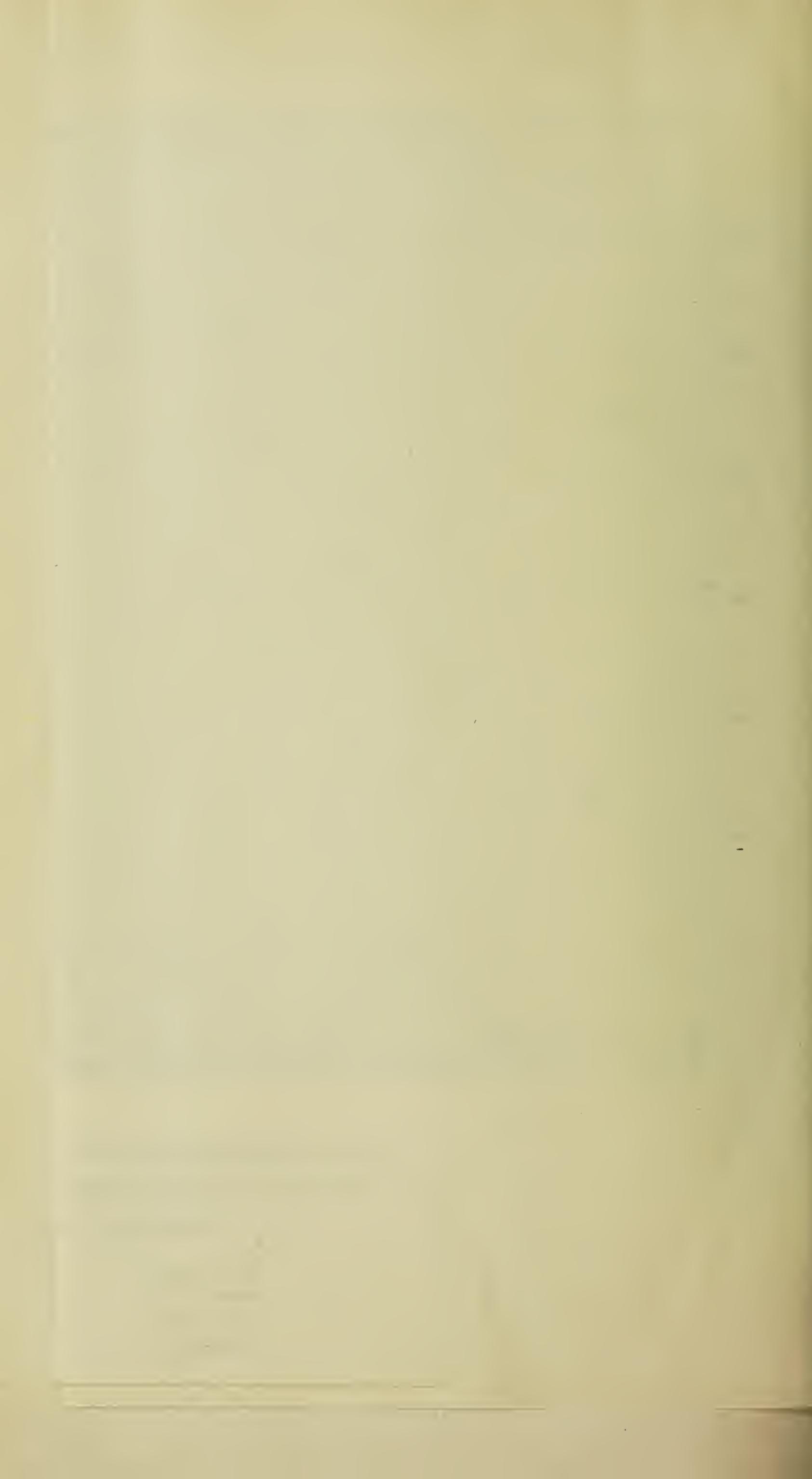
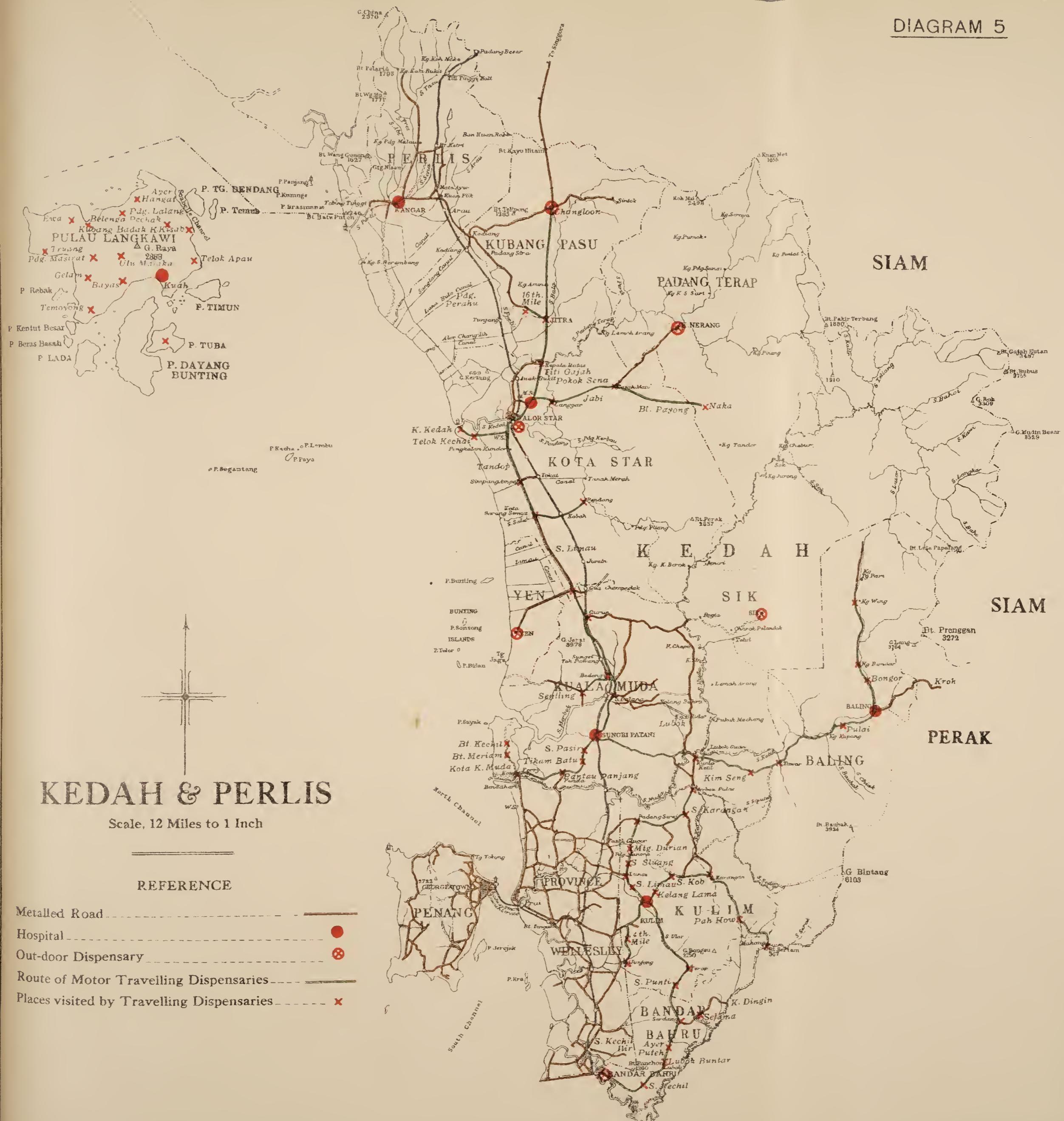


DIAGRAM 5



## KEDAH & PERLIS

Scale, 12 Miles to 1 Inch

## REFERENCE

Metalled Road - - - - -  
Hospital - - - - - ●  
Out-door Dispensary - - - - - ●  
Route of Motor Travelling Dispensaries - - - - -  
Places visited by Travelling Dispensaries - - - - - x



# MEDICAL AND SANITARY REPORT, PERLIS.

FOR THE YEAR 1934 A. D.

(15th Ramthan, 1352 A. H. to 24th Ramthan, 1353 A. H.)

## I. ADMINISTRATION.

The principal appointments are:—

The State Surgeon, Kedah, who visits once a month and oftener if required.  
1 Assistant Surgeon.  
1 Hospital Assistant, Grade I.  
1 Dresser Grade II.  
1 Dresser, Probationer.  
1 Vaccinator.  
1 Midwife.

## FINANCIAL.

Revenue collected .. .. .. ..	\$ 1,314.66
Expenditure .. .. .. ..	\$23,496.97

## ORDINANCES.

The Registration of Births and Deaths Enactment, 1352, came into force on 16-4-1934 (1-1-1353).

## II. PUBLIC HEALTH.

One fatal case of Diphtheria (Chinese child) from Kaki Bukit was transferred to Alor Star Hospital.

Three cases of Chicken-pox and one case of measles were seen during the year.

A number of cases of mumps was reported in Kaki Bukit during May, 1934 and in Kampong Salang among the school children in November, 1934. The disease ran a benign course.

Five cases of Enteric fever (all Chinese, four from Kaki Bukit and one from Bintong with four deaths) were admitted into hospital.

No case of tropical typhus was encountered during the year. Eighteen cases of Dysentery with one death were treated at the hospital against 27 with 2 deaths in 1933. Most of them were amoebic.

85 cases of Ankylostomiasis with 4 deaths were reported as against 47 with 5 deaths in 1933.

27 cases of Tuberculosis were admitted into hospital with 7 deaths against 23 with 5 deaths in 1933. 32 deaths from Tuberculosis were recorded against 45 in 1933.

As usual, fevers account for the largest portion of the total deaths—377 against 327 in 1933. The number of cases admitted into hospital for Malaria remains the same—362 against 363 in 1933, while the mortality was slightly higher—18 against 17 in 1933.

Infantile convulsions are also a frequent cause of death—116 against 119 in 1933.

Respiratory diseases come next in order to fevers and are responsible for 165 deaths in the State (187 in 1933).

The total death rate was 16.73, slightly higher than that in 1933. Total deaths recorded amount to 885 against 855 in 1933.

The infant mortality records show 139 as against 134 in the last year—83.43 per mille against 96.40 in 1933—a slight fall. 3 cases of Tetanus Neonatorum—all fatal—were admitted into hospital.

Births during the year show a distinct increase (1,730 against 1,436 in 1933), the birth rate 32.81 per mille being the highest recorded for the past 12 years. 17 deaths were recorded as due to affections connected with pregnancy and parturition or a percentage of 0.98 to total births. The figures for 1933 were 32 deaths or a percentage of 2.23.

Towards the latter part of the year, Kangar was under water three times namely about the first week of September, October, and November owing to floods which lasted for a few days.

Larval surveys by the Larvae Collector and identifier show the prevalent types as in Appendix E.

The health of the prisoners in Kangar Gaol was satisfactory; of the 28 prisoners who remained in the Gaol at the beginning of the year and 91 who were admitted during the year, 13 cases were admitted into hospital (for further details vide Appendix C.)

The health of the Government Servants was satisfactory; all were examined for signs of Pulmonary Tuberculosis and one was found to be suffering from active disease.

#### RABIES.

Twenty-three cases of dog bite were reported, the first on 8-1-1934 and the last on 28-12-1934. Twenty-three dogs were concerned in all; five were unknown stray dogs; thirteen were declared not rabid after being kept under observation for ten days; five were killed on the spot.

Of the five, only the brains of three (Kangar one, Arau two) were available for examination, and were sent to the Institute for Medical Research, Kuala Lumpur, through the State Veterinary Surgeon, Kedah. Two were reported to be positive for rabies, and one to provisionally negative. All the ten persons bitten by dogs actually rabid or suspected to be rabid, were sent to Alor Star Hospital for treatment.

Two cases of hydrophobia (both Chinese mining coolies from Kaki Bukit) were admitted into hospital on 20-1-1934 and 21-4-1934, and died shortly afterwards. In both instances, there was a history of dog bite which was left untreated from sheer ignorance.

One Malay boy who underwent treatment at Alor Star Hospital for being bitten by an unknown dog, died in his house a few weeks after completion of the treatment; the cause of death in this instance was not known.

#### OFFICIALS.

The following table gives the Health Statistics of Government Officials (including subordinates) in Perlis.

		Europeans.	Asiatics.
Total number of officials resident	..	..	316
Average number resident	..	..	316
Total number on sick list	..	..	24
Total number of days on sick list	..	..	224
Average daily number on sick list	..	..	0.61
Percentage of sick to average number resident	..	..	7.59
Average number of days on sick leave for each patient	..	..	9.33
Average sick time to each resident	..	..	0.71
Total number invalided	..	..	3
Percentage of invalidings to total resident	..	..	0.95
Total deaths	..	..	2
Percentage of deaths to average resident	..	..	0.63
Number of cases of sickness contracted away from residence	..	..	..

## SCHOOLS.

Regular fortnightly visits were made to 16 schools by the Travelling Dispensary. Of the Malay Vernacular Schools in Perlis (4 Girls' and 20 Boys' Schools), 12 Boys' Schools were visited by the Assistant Surgeon with the following results:—

1. Total number of children on Register .. ..	1,148
2. Total number of children inspected .. ..	893

No.	Diseases	No. of Cases	Percentage
1	Splenic enlargement ... ...	274	30.68
2	Cardiac valvular disease ...	4	0.45
3	Not vaccinated { never vaccinated ...	32	3.58
	vaccinated; but not taken ...	22	2.46
4	Ear disease ...	4	0.45
5	Scabies ...	9	1.01
6	Yaws ...	5	0.56
7	Other skin diseases ...	49	5.49
8	Eye disease ...	4	0.45
9	Caries Dental ...	548	61.37
10	Bronchitis ...	78	8.73

55 school children had N.A.B. injections for Yaws.

## VACCINATIONS.

1,910 vaccinations were done.

Malays .. .. .. .. ..	1,650
Chinese .. .. .. .. ..	195
Siamese .. .. .. .. ..	57
Indians .. .. .. .. ..	7
Others .. .. .. .. ..	1
 Total .. .. .. .. ..	 1,910

## ESTATES.

The number of estates of any importance in Perlis is only three—all owned by Asiatics.

The population in the two estates (one of the three estates employs very few labourers) was as follows:—

Nationalities	LABOURERS		DEPENDENTS		Infants	Total
	Males	Females	Adults	Children		
Malays ... ..	75	31	1	10	2	119
Indians ... ..	154	90	5	52	17	318
Chinese ... ..	...	...	...	...	...	...
Javanese ... ..	...	...	...	...	...	...
Others ... ..	...	...	...	...	...	...
 Total ...	229	121	6	62	19	437

There were 2 deaths on the Estates, one infant and one adult dependent. There were 10 births on the Estates including one still birth (all Indians). Admissions to hospital numbered 96 with 2 deaths.

## VITAL STATISTICS.

(a) The population of Perlis for the middle of 1934, determined by the method of geometrical progression was 52,723.

The following is a comparative table for the last six years:—

Year	Estimated Population	Births	Birth rate per mille	Deaths	Death rate per mille
1347 A. H. ...	46,916	1,315	28.03	767	16.35
1930 A.D. ...	47,633	1,251	26.26	764	16.04
1931 " ...	49,296	1,219	24.74	951	19.29 census figure.
1932 " ...	49,800	1,272	25.54	743	14.92
1933 " ...	51,644	1,436	27.81	855	16.56
1934 " ...	52,723	1,730	32.81	885	16.79

(b) Population according to race with deaths and death rate.

Races	Approximate Population	Deaths	Death rate per mille
Eurasians ...	19	...	...
Europeans ...	6	...	...
Chinese ...	7,830	211	26.95
Malays ...	41,469	630	15.19
Indians ...	1,251	15	11.99
Others (mostly Siamese) ...	2,148	29	13.50
Total ...	52,723	885	16.79

There were 139 deaths among infants under one year old, the rate being 83.43.

(c) Infant death rate for the last six years was:— (corrected rate).

Years	Deaths	Rate per mille
1347 A. H. ...	146	113.80
1930 A. D. ...	145	119.93
1931 " ...	179	151.18
1932 " ...	130	105.01
1933 " ...	134	96.40
1934 " ...	139	83.43

The infantile death rate per thousand births (excluding still births) among the principal nationalities was:—

Malays ..	..	..	..	..	..	76.47
Chinese ..	..	..	..	..	..	121.74
Indians ..	..	..	..	..	..	133.33
Siamese ..	..	..	..	..	..	65.22

(d) Births according to nationalities and sex.

Nationality	Males	Females	Total
Eurasians ...	...	...	...
Europeans ...	...	...	...
Chinese ...	132	108	240
Malays ...	725	685	1,410
Indians ...	11	21	32
Siamese ...	25	23	48
Total ...	893	837	1,730

## (e) Still births according to sex and nationality.

Nationality			Males		Females		Total	
Eurasians	...	...	...	...	...	...	...	...
Europeans	...	...	...	...	...	...	...	...
Chinese	...	...	...	5	...	5	...	10
Malays	...	...	...	27	...	23	...	50
Indians	...	...	...	...	...	2	...	2
Siamese	...	...	...	...	...	2	...	2
Total	...	...	32	...	32	...	64	...

## (f) Distribution of deaths according to Nationalities and Diseases.

Diseases	Malays		Chinese		Indians		Siamese		Total		Rate per mille of population	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Malaria	...	...	6	11	16	4	...	...	22	16	38	0.72
Enteric fever	...	...	8	4	2	1	...	...	11	5	16	0.30
Dysentery	...	...	1	...	3	...	...	...	4	...	4	0.08
Influenza	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculosis of Respiratory system	16	1	10	3	...	...	1	1	27	5	32	0.61
Other forms of tuberculosis	...	...	...	...	...	...	...	...	...	...	...	...
Leprosy	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis	...	...	...	...	...	...	...	...	...	...	...	...
Ankylostomiasis	...	...	1	...	2	...	1	...	3	1	4	0.08
Ascariasis	...	...	1	2	...	...	...	...	1	2	3	0.06
Fever unspecified	...	...	139	119	33	13	2	2	7	8	181	323
Cancer	...	...	...	...	2	...	...	...	...	...	2	0.04
Beri Beri	...	...	...	...	2	...	1	...	3	...	3	0.06
Diseases of the heart	...	...	...	...	6	...	...	...	6	...	6	0.11
Heart failure	...	...	...	1	...	...	...	...	...	1	1	0.02
Other diseases of Circulatory sys:	...	...	...	1	...	...	...	...	19	19	38	0.72
Bronchitis	...	...	13	19	4	...	...	2	...	19	19	38
Pneumonia (all forms)	...	4	1	39	1	4	...	...	47	2	49	0.93
Demam Batok	...	9	7	3	1	...	...	1	...	13	8	21
Other diseases of Resp. System	...	14	6	5	...	...	...	...	19	6	25	0.47
Diarrhoea and Enteritis	...	...	2	...	...	...	...	...	...	2	2	0.04
Other diseases of digestive system	...	5	6	4	1	...	...	...	9	7	16	0.30
Convulsions	...	56	37	9	10	...	...	2	2	67	49	116
Diseases of nervous sys: and sense organs	...	...	1	1	...	...	...	...	1	1	2	0.04
Nonvenereal diseases of Genito-urinary sys:	...	...	...	3	...	1	...	...	4	...	4	0.08
Basal	...	...	14	10	6	3	...	...	20	13	33	0.63
Diseases of pregnancy, child birth, etc.	...	...	12	...	4	...	1	...	...	17	17	0.32
Premature birth and diseases of early infancy	...	...	2	...	1	1	...	...	3	1	4	0.08
Old age or Senility	...	40	35	4	1	...	...	1	2	45	38	83
Violence (all forms including accidents)	...	11	...	5	...	1	...	...	16	...	16	0.30
Other causes	...	7	10	4	4	1	...	...	12	14	26	0.49
<b>TOTAL</b>	...	346	284	165	46	10	5	15	14	536	319	885
												16.79

## (g) Deaths according to Sex and Nationalities.

Nationality			Males		Females		Total	
Malays	...	...	346	...	284	...	630	...
Chinese	...	...	165	...	46	...	211	...
Indians	...	...	10	...	5	...	15	...
Siamese	...	...	15	...	14	...	29	...
<b>Total</b>	...	...	536	...	349	...	885	...

## (h) Deaths grouped according to age, sex and nationalities, 1934.

Age Groups			Sex	Europeans	Eurasians	Malays	Chinese	Indians	Siamese	Total
0	...	...	{ Males	...	...	21	9	1	2	33
			{ Females	...	...	18	5	1	1	25
4 weeks	...	...	{ Males	...	...	15	4	...	...	19
			{ Females	...	...	6	...	...	...	6
3 months	...	...	{ Males	...	...	12	2	...	...	14
			{ Females	...	...	8	4	...	...	12
6 "	...	...	{ Males	...	...	13	2	1	...	16
			{ Females	...	...	11	2	1	...	14
1 year	...	...	{ Males	...	...	30	7	...	1	38
			{ Females	...	...	24	4	1	3	32
5 years	...	...	{ Males	...	...	15	3	...	1	19
			{ Females	...	...	12	3	...	1	16
10 "	...	...	{ Males	...	...	8	...	...	...	8
			{ Females	...	...	9	2	...	...	11
15 "	...	...	{ Males	...	...	4	2	...	...	6
			{ Females	...	...	9	2	...	...	11
20 "	...	...	{ Males	...	...	8	7	...	...	15
			{ Females	...	...	8	5	...	1	14
25 "	...	...	{ Males	...	...	9	11	1	...	21
			{ Females	...	...	10	2	...	1	13
30 "	...	...	{ Males	...	...	23	13	2	2	40
			{ Females	...	...	19	2	1	1	23
35 "	...	...	{ Males	...	...	15	17	1	2	35
			{ Females	...	...	11	4	...	1	16
40 "	...	...	{ Males	...	...	26	27	3	1	57
			{ Females	...	...	18	3	...	...	21
45 "	...	...	{ Males	...	...	14	18	...	...	32
			{ Females	...	...	7	2	...	...	9
50 "	...	...	{ Males	...	...	27	17	1	2	47
			{ Females	...	...	19	1	...	1	21
55 "	...	...	{ Males	...	...	47	17	...	2	66
			{ Females	...	...	27	1	...	1	29
65 "	...	...	{ Males	...	...	28	7	...	1	36
			{ Females	...	...	27	2	1	1	31
75 years and above	...	...	{ Males	...	...	31	2	...	1	34
			{ Females	...	...	41	2	...	2	45
Total Males & Females ...			...	...	...	630	211	15	29	885

### III. HOSPITALS AND DISPENSARIES. GENERAL HOSPITAL, KANGAR.

The number of indoor cases treated during the year was 1,403, a slight increase over the number of cases treated during 1933. There were 114 deaths, being a percentage of 8.13 to total treated. Excluding 44 deaths which occurred within 48 hours of admission, the death rate was 5.15.

The daily average number of inpatients was 52.78.

The largest number of inpatients on one day was 81 on 22-10-34.

#### Indoor patients according to nationalities.

Nationality	No. treated	Deaths	Percentage of deaths	Deaths within 48 hours
Chinese	...	845	96	11.36
Indians	...	395	11	2.78
Malays	...	147	6	4.08
Javanese	...	4	1	25.00
Siamese	...	12	...	...
Others	...	...	...	...
Total	...	1,403	114	8.13
				44

There was an increase in the number of cases admitted for Pneumonia, Ankylostomiasis, Pulmonary Tuberculosis and other diseases; the number admitted for Malaria was about the same, and there was a fall in the number of cases admitted for Amoebic Dysentery, Venereal Diseases, other lung complaints, ulcers and injuries.

P R E V A I L I N G D I S E A S E S .

Diseases	1930 A. D.				1931 A. D.				1932 A. D.				1933 A. D.				1934 A. D.			
	Cases	Deaths	Cases	Deaths	Cases	Deaths														
Malaria	...	374	15	4.01	367	16	4.36	297	8	2.69	363	17	4.68	362	18	4.97	9			
Dysentery Amoebic	...	7	1	14.29	12	1	8.30	7	1	14.29	19	...	...	14	...	...	...			
"    Bacillary	...	3	1	33.33	6	1	16.70	5	...	...	6	1	16.67	...	...	...	...			
Venereal Diseases	...	41	...	...	45	...	...	43	...	...	62	...	...	48	1	2.08	...			
Pulmonary Tuberculosis	...	42	7	14.29	29	6	20.70	46	10	21.74	24	3	12.50	27	6	22.22	1			
Pneumonia	...	...	...	...	41	30	68.20	35	16	45.71	55	19	34.55	73	43	58.90	5			
Other lung complaints	...	85	19	22.22	62	4	6.40	76	3	3.95	119	5	4.20	78	5	6.41	1			
Ankylostomiasis	...	45	1	2.22	48	...	...	28	...	...	47	5	10.64	87	4	4.60	...			
Ulcers	...	81	...	...	57	...	...	51	...	...	58	...	...	53	...	...	...			
Injuries	...	105	2	1.90	64	...	...	103	1	0.97	104	2	1.92	96	...	...	...			
Other diseases	...	336	21	6.25	365	24	6.50	414	23	5.56	522	29	5.55	565	37	6.55	13			
Total	...	1,119	67	6.00	1,099	82	7.50	1,115	62	5.61	1,379	81	5.90	1,403	114	8.13	29			

## ADMISSIONS FROM ESTATES AND MINES.

The total number of patients from Estates and Mines was 123 with 10 deaths or a percentage of 8.13.

Nationality			Remained	Admitted	Total	Deaths
Chinese	...	...	...	26	26	8
Indians	...	...	1	96	97	2
	Total	...	1	122	123	10

## PREVAILING DISEASES.

## Infectious Diseases with deaths.

Diseases	Total treated	Deaths	Percentage of deaths
Chicken-pox	1	...	...
Diphtheria	1	...	...
Dysentery, Amœbic	14	...	...
Dysentery, type undiagnosed	4	1	25.00
Enteric Fever	6	3	50.00
Erysipelas	3	...	...
Hydrocephalus	2	2	100.00
Influenza	41	...	...
Leprosy	2	...	...
Mumps	3	...	...
Pneumonia	73	43	58.90
Tetanus	3	3	100.00
Tuberculosis	29	7	24.14
	Total	182	59
			32.42

## SURGICAL OPERATIONS.

6 major operations and 239 minor operations were performed.

## LABORATORY WORK.

Blood films were examined in 2,826 instances with the following results:—

Malaria B.T.	..	..	..	..	..	221
"  M.T.	..	..	..	..	..	302
"  Quartan	..	..	..	..	..	6
"  Mixed	..	..	..	..	..	88
Negative	..	..	..	..	..	2,209
					Total	.. 2,826

Other specimens examined totalled 3,137. (For details vide Appendix B.)

## POST MORTEM EXAMINATIONS.

Medico-legal ..	..	..	..	..	..	5
Pathological ..	..	..	..	..	..	34
					Total ..	39

## OUT-DOOR CASES.

Number of new cases ..	..	..	..	..	6,386
Repetitions ..	..	..	..	..	2,061

The nationalities who received treatment were:—

Chinese ..	..	..	..	..	..	1,123
Indians ..	..	..	..	..	..	1,233
Malays ..	..	..	..	..	..	3,940
Siamese ..	..	..	..	..	..	34
Europeans ..	..	..	..	..	..	30
Eurasians ..	..	..	..	..	..	19
Others ..	..	..	..	..	..	7
					Total ..	6,386

In addition to those treated at the hospital dispensary, 26 cases were treated in the Kangar Gaol.

The hospital midwife attended 14 cases in their houses.

Neosalversan injections numbered 1,221 of which 1,095 were for Yaws (6 to indoor patients and the rest to out-door cases) and 126 for other conditions.

An attempt was made this year to keep a record of all the cases of Yaws with a view to following them up afterwards. It was impressed on all the patients that at least four consecutive weekly injections were necessary for the eradication of the disease. All the cases were given cards of identification. Of the 738 new cases that were treated during the year, only a few came up for subsequent injections (vide table below).

514 patients took only one injection.

144 patients took only 2 injections.

50 patients took only 3 injections.

27 patients took only 4 injections.

1 patient had 5 injections.

1 patient had 7 injections.

1 patient had 8 injections.

The last two cases were refractory.

The travelling dispensary attended to 763 cases, excluding those attended at schools, police stations and cooly lines.

One mental case (Malay, male) was transferred to the Central Mental Hospital, Tanjong Rambutan, during the year; one was discharged as cured, and two died there during the period under review; there were 14 Perlis patients (8 males and 6 females) at the end of the year in that institution.

One leper (male Chinese) was transferred to the Leper Asylum, Pulau Jerejak.

## APPENDIX—A.

ANNUAL RETURN OF INDOOR PATIENTS, TREATED IN GENERAL HOSPITAL,  
PERLIS, DURING THE YEAR 1934 A. D.

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>INFECTIVE DISEASES.</b>						
Chicken pox	...	1	...	1	...	...
Diphtheria	...	1	...	1	...	...
Dysentery Amœbic	...	14	...	14	...	2
" Type undiagnosed	...	4	1	4	...	1
Enteric Fever	...	5	3	6	...	...
Erysipelas	...	3	...	3	...	...
Gonorrhœa	...	20	...	21	...	1
Gonorrhœal Arthritis	...	3	...	3	...	...
" Conjunctivitis	...	1	...	1	...	...
" Epididymitis	1	6	...	7	...	...
" Rheumatism	...	2	...	2	...	...
" Tenosynovitis	...	1	...	1	...	...
Hydrophobia	...	2	2	2	...	...
Influenza	1	40	...	41	...	...
Leprosy	...	2	...	2	...	...
<b>Malaria :—</b>						
(a) Benign Tertian	2	97	...	99	9	
(b) Quartan	...	4	1	4	...	
(c) Malignant Tertian	7	124	8	131	4	
(d) Mixed Infection	3	77	5	80	3	
(e) Type undiagnosed	1	43	4	44	3	
(f) Malaria Cachexia	2	2	...	4	1	
Mumps	...	3	...	3	1	
Pneumonia	2	71	43	73	1	
Pyrexia of uncertain origin	...	37	...	37	...	
Rheumatism	...	12	...	12	...	
<b>Syphilis :—</b>						
(a) Primary	...	4	...	4	...	
(b) Secondary	...	...	...	...	...	
Tetanus	...	3	3	3	...	
<b>Tuberculosis :—</b>						
(a) Pulmonary	2	25	6	27	2	
(b) Intestinal	...	2	1	2	...	
Yaws	...	3	...	3	1	
<b>INTOXICATIONS.</b>						
Opium intoxication	...	5	...	5	...	
Cannabis Indica intoxication	...	1	...	1	...	
<b>GENERAL DISEASES/</b>						
Beri-beri	...	9	3	9	2	
Lymphadenoma	...	1	...	1	...	
Debility	1	1	2	2	...	
Scurvy	...	1	...	1	...	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.</b>						
New growth, Malignant Cyst	...	3 2	2	3 2	...	1
<b>DISEASES OF THE NERVOUS SYSTEM.</b>						
Nerves :—						
Neuritis	...	9		9		2
Facial Paralysis	...	1		1		
Spinal Cord and Membranes :—						
Myelitis	...	1		1		
Locomotor ataxia	...	3		3		1
Brain and Membranes :—						
Nervous Disorders :—						
Apopplexy	...	1	1	1		
Hemiplegia	...	2		2		1
Convulsions	...	1		1		
Epilepsy	...	1		1		
Neuralgia	...	3		3		
Mental Diseases :—						
Mania	...	2		2		
Observations	...	3		3		
<b>DISEASES OF THE EYE.</b>						
Conjunctivitis	...	4		4		
Ulcer of Cornea	...	1		1		
Etiopion	...	1		1		
<b>DISEASES OF THE EAR.</b>						
Inflammation	...	1		1		...
<b>DISEASES OF THE CIRCULATORY SYSTEM.</b>						
Valvular disease	...	2		2		...
Myocarditis	...	19	6	19		
<b>DISEASES OF THE RESPIRATORY SYSTEM.</b>						
Asthma	...	15		15		2
Bronchitis	...	39		39		1
Broncho-pneumonia	...	20	3	20		...
Pleurisy	...	1		1		...
Empyema	...	2	1	2		1
Emphysema	...	1	1	1		...

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE DIGESTIVE SYSTEM.</b>						
Stomatitis	...	2		2		
Gingivitis	...	1		1		
Caries of tooth	...	2		2		
Inflammation of Pharynx	...	4		4		
Gastritis	...	2		2		
Enteritis	...	7		7		
Colitis	...	3		3		
Duodenal Ulcer	...	4		4		
Hernia	...	2		2		
Diarrhoea	...	1		1		
Colic	...	16		16		
Ischio-rectal abscess	...	2		2		
Fissure of Anus	...	1		1		
Fistula-in-ano	...	1		1		
Hemorrhoids	...	2		3		
Hepatitis	...	5		5		
Cirrhosis of the liver	...	5	1	7		
Jaundice	...	2		2		
Cholecystitis	...	2		2		
Thrush	...	1		1		
<b>DISEASES OF THE LYMPHATIC SYSTEM.</b>						
Bubo	...	4		4		
Suppuration of glands	...	2		3		
Lymphangitis	...	1		2		
Adenitis	...	1		1		
<b>DISEASES OF THE THYROID BODY.</b>						
Goitre-suppurating	1	...	...	1		
<b>DISEASES OF THE URINARY SYSTEM.</b>						
Nephritis-sub-acute	2	11	4	13		
Cystitis	...	3	...	3		
Hæmaturia Calculus	...	1	...	1		
<b>DISEASES OF THE GENERATIVE SYSTEM.</b>						
<i>Male:—</i>						
Infective Granuloma	...	1		1		
Urethral fistula	...	2		2		
Phimosis	...	2		2		
Soft chancre	...	2		3		
Scrotum sloughing	...	2	1	2		
Hydrocele	...	1		1		
<i>Female:—</i>						
Endometritis	...	2		2		
Salpingitis	...	1		1		
Cystocele	...	1		1		

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.</b>						
Natural Labour ...	...	15	...	15	...	...
Difficult Labour ...	...	2	...	2	...	...
Abortion ...	1	1	...	2	...	...
Retention of placenta ...	...	1	...	1	...	...
Puerperal sapraemia ...	...	2	2	2	...	...
Placenta prævia ...	...	1	1	1	...	...
Eclampsia ...	...	1	1	1	...	...
Albuminuria complicating pregnancy ...	...	1	...	1	...	...
Pregnancy-waiting case ...	...	6	...	6	...	...
Premature birth ...	...	1	1	1	...	...
<b>DISEASES OF THE ORGANS OF LOCOMOTION.</b>						
Caries of bones ...	...	1	...	1	1	...
Osteomyelitis-left Tibia ...	...	1	...	1	...	...
Synovitis ...	1	2	...	3	...	...
<b>DISEASES OF THE CONNECTIVE TISSUE.</b>						
Cellulitis ...	...	8	3	8	1	...
Abscess ...	...	26	...	26	1	...
<b>DISEASES OF THE SKIN.</b>						
Eczema ...	...	7	...	7	...	...
Boil ...	...	6	...	6	...	...
Herpes Zoster ...	...	2	...	2	...	...
Ulcers ...	5	48	...	53	3	...
<b>INJURIES.</b>						
General—						
Concussion of the brain ...	...	1	...	1	...	...
Local—						
(a) Wounds ...	4	58	...	62	5	...
(b) Sprain, contusion &c. ...	1	14	...	15	1	...
(c) Fracture, simple ...	1	6	...	7	...	...
(d) " compound ...	...	3	...	3	...	...
Snake-bite ...	...	3	...	3	...	...
Dog-bite ...	...	5	...	5	...	...
<b>POISONS.</b>						
Plasmoquine toxicity ...	...	1	...	1	...	...
Caustic Potash poisoning ...	...	1	...	1	...	...
<b>PARASITES.</b>						
Tænia saginata ...	...	1	...	1	...	...
Ascaris lumbricoides ...	...	28	...	28	...	...
Ankylostomiasis ...	2	85	4	87	5	...
Scabies ...	...	7	...	7	...	...
<b>ILL-DEFINED CAUSES.</b>						
Heart failure ...	...	1	1	1	...	...
No APPRECIABLE DISEASE ...	...	2	...	2	...	...
FOR OBSERVATION ...	...	51	...	51	1	...
FOR THE SAKE OF MOTHER, CHILD, ETC. ...	...	86	...	86	4	...
<b>TOTAL</b> ...	51	1,352	114	1,403	67	

Percentage of deaths to total treated .. .. ..	8.13
Total number of cases which proved fatal within 48 hours of admission .. .. .. .. ..	44
Percentage of deaths to total treated, excluding deaths within 48 hours of admission .. .. .. ..	5.15
Average duration of stay in Hospital of fatal cases .. ..	19.45 days
Average daily number of sick .. .. ..	52.78
Largest number of sick on one day with date .. ..	81 on 22-10-34
Total number of beds .. .. .. ..	60
Deaths occurred within 24 hours of admission .. ..	29

### OPERATIONS.

Major operations .. .. .. .. ..	6
Minor operations .. .. .. .. ..	239

## APPENDIX—B.

## Laboratory Work.

Specimens		Positive	Negative	Total
Blood (Malaria) ...	...	617	2,209	2,826
Pus	...	35	16	51
Eye Smear	...	3	9	12
Nasal Smear	...	3	16	19
Sputum (Tubercle bacilli)	...	26	181	207
Stool	...	1,207	456	1,663
Urine	...	228	957	1,185
Total	...	2,119	3,844	5,963

APPENDIX—C.  
Return of sick prisoners admitted into Kangar Hospital, 1934.

Diseases	Cases	Deaths
Ankylostomiasis	4	...
Colic intestinal	2	...
Contusion	1	...
Influenza	1	...
Malaria-Malignant Tertian	1	...
Scabies	1	...
Soft chancre	1	...
Stomatitis	1	...
Tapeworm ( <i>Tænia Saginata</i> )	1	...
Total	13	...

## APPENDIX—D.

Report showing the number and types of Larvae collected in Perlis, 1934.

FOUND AT				Barbirostris	Fuliginosus	Kochii	Simesis	Vagus	REMARKS.
Arau	...	...	...	2	5	30	5	55	
Kangar	...	...	...	27	10	16	4	9	
	TOTAL	...		29	15	46	9	64	

APPENDIX—E.

Station—KANGAR, PERLIS.

CLIMATOLOGICAL SUMMARY.

Lat. 6° 26' N.  
Long. 100° 12' E.

Height above M.S.L. 10 Feet.

AIR TEMPERATURE IN DEGREES FAHRENHEIT

MEANS

ABSOLUTE EXTREMES

RAINFALL

Year 1934	MEANS				DEVIATION FROM NORMAL				MEANS				DEVIATION FROM NORMAL				RAINFALL								
	9 a.m.	9 a.m.	9 p.m.	9 p.m.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	9 a.m.	9 p.m.	9 a.m.	9 p.m.					
JANUARY ...	79.3	85.2	75.5	87.6	71.2	79.4	70	17, 19	65	29	84	7	74	18, 21	77	62	87	2.41	1.40	18	5				
FEBRUARY ...	80.1	86.4	76.2	88.7	70.9	79.8	70	21, 25	65	2	81	1	74	22	73	59	84	0.68	...	-1.25	0.44	13	2		
MARCH ...	82.0	88.5	77.6	91.5	72.5	82.0	70	27	71	SEV.	87	6	75	19	75	59	85	2.30	...	-2.88	1.66	22	8		
APRIL ...	82.6	87.2	78.2	90.6	73.5	82.1	70	8	70	6	85	17	77	9	79	67	90	12.03	...	+4.65	2.80	9	15		
MAY ...	82.9	86.1	78.8	88.4	74.4	81.4	70	1.30	72	1	83	2, 3	76	SEV.	82	72	90	9.11	...	+0.76	3.02	-	4	19	
JUNE ...	82.8	85.5	79.0	88.4	74.6	81.5	70	18	72	1	82	20	76	SEV.	83	74	91	5.88	...	-0.93	2.18	5	18		
JULY ...	82.2	85.4	78.7	87.2	74.4	80.8	70	...	91	8	72	SEV.	83	72	92	12.14	...	+3.87	4.68	...	16	19			
AUGUST ...	81.7	83.8	78.0	86.5	73.9	80.2	70	...	91	1	71	12	78	10	77	20	84	74	91	12.39	...	+3.74	3.23	10	18
SEPTEMBER ...	81.1	84.0	78.9	85.9	75.0	80.5	70	...	90	13	72	4, 23	80	SEV.	78	8, 19	87	76	90	12.92	...	+2.18	2.57	4	20
OCTOBER ...	79.9	82.8	77.1	86.0	74.2	80.1	70	...	90	13	72	16	80	2, 7	77	26	89	80	93	14.20	...	+3.41	2.06	15	23
NOVEMBER ...	79.6	82.7	76.5	85.5	73.8	79.7	70	...	90	SEV.	71	20	76	22	76	9, 29	84	77	93	11.42	...	+2.81	4.30	3	20
DECEMBER ...	79.4	85.6	74.7	87.2	70.9	79.1	70	...	90	SEV.	67	4, 8	82	SEV.	75	30	76	59	88	1.12	...	-3.14	0.36	28	6
Total		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	+13.94	...	...	173		
Means or Extremes		81.1	85.3	77.4	87.8	73.3	80.5	70	...	95	...	65	...	78	...	81	69	89	...	...	4.68	...	...	...	

TIMES ARE ZONE TIME LONGITUDE 105° E.



